

WESTERN INDUSTRY



* Log scaler determining board foot content of carload of Ponderosa pine logs somewhere in the Pacific Northwest.

Twenty-Five Cents

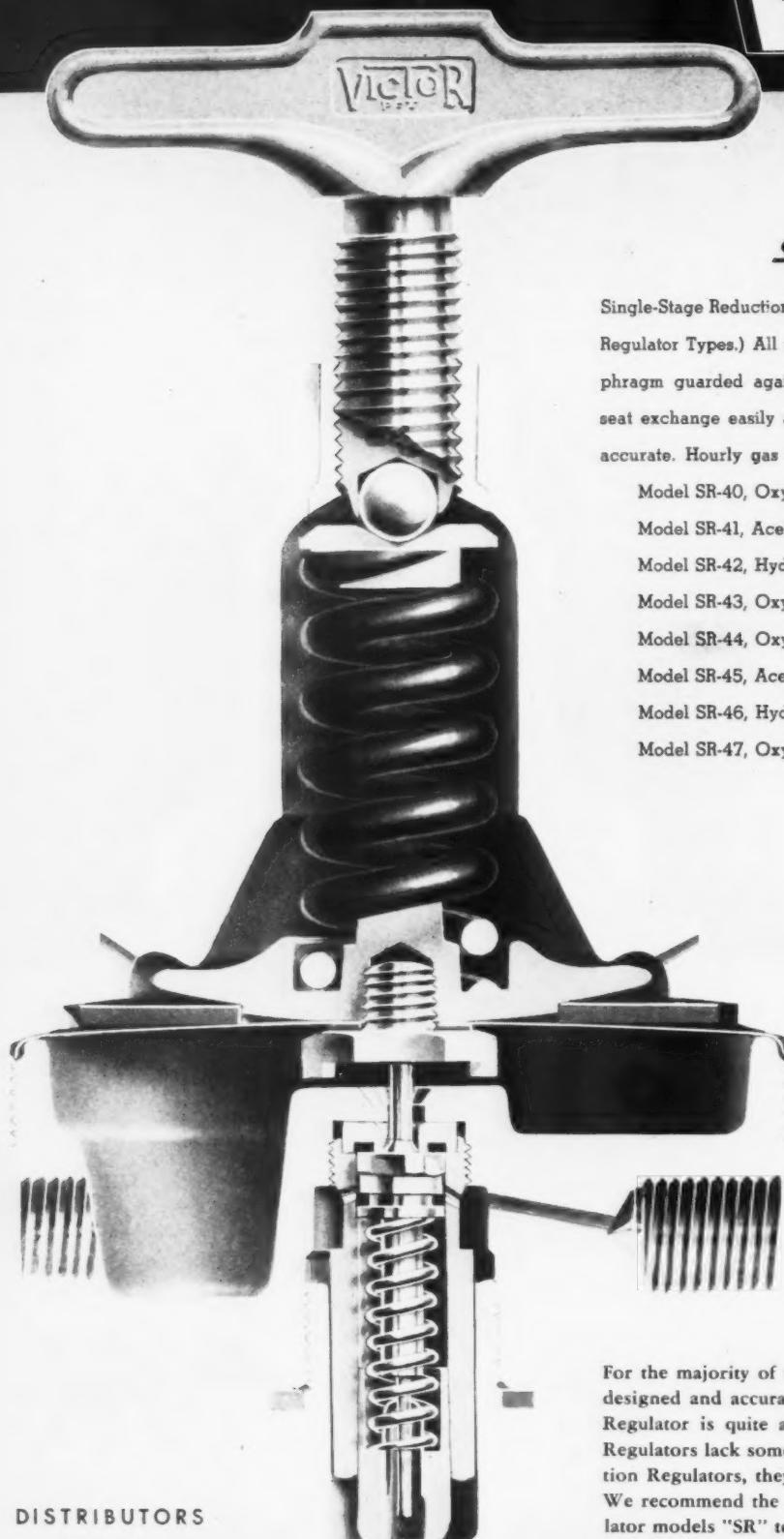
VOLUME IX

NUMBER 1

August, 1944

REGULATOR BY

VICTOR



Specifications

Single-Stage Reduction. (We also produce Two-Stage Reduction Regulator Types.) All wearing parts adequately protected. Diaphragm guarded against shearing and buckling. Occasional seat exchange easily and swiftly accomplished. Very pressure accurate. Hourly gas capacity 1,840 cu. ft. p. hr. at 100 Psi.

Model SR-40, Oxygen

Model SR-41, Acetylene or Liq. Pet. Gases

Model SR-42, Hydrogen

Model SR-43, Oxygen, cutting

Model SR-44, Oxygen, manifold

Model SR-45, Acetylene, manifold

Model SR-46, Hydrogen, manifold

Model SR-47, Oxygen, heavy duty

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FROM
COAST TO COAST

For the majority of welding and cutting operations, a well-designed and accurately functioning Single-Stage Reduction Regulator is quite adequate. While Single-Stage Reduction Regulators lack some of the advantages of Two-Stage Reduction Regulators, they are more easily maintained in service. We recommend the VICTOR Single-Stage Reduction Regulator models "SR" to the most discriminating buyer.

VICTOR EQUIPMENT COMPANY
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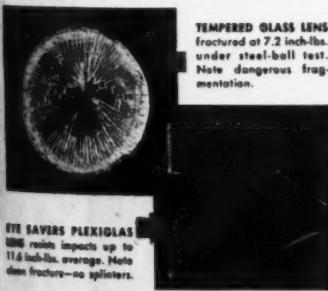
NT
MGM



WATCHEMOKET
eye
SAVERS

the all-plastic goggle that meets all three major requirements of eye protection

RESISTANCE TO IMPACT



TEMPERED GLASS LENS
fractured at 7.2 inch-lbs.
under steel-ball test.
Note dangerous fragmentation.

EYE SAVER LENS
resists impacts up to
11.6 inch-lbs. average. Note
diss fracture—no splinters.

OPTICAL QUALITIES

Tests made in accordance with ASTM Standard D672-42T	EYE SAVERS LENS	Cellulose acetate lens	Tempered glass lens
Thickness of lens tested	2.05 mm.	1.34 mm.	3.55 mm.
Light transmission	93.8%	89.5%	92.6%
Haze factor	1.29%	1.53%	1.48%

U. S. TESTING CO. REPORT No. 42805, March 8, 1944

RESISTANCE TO PITTING

TEMPERED GLASS LENS
exposed to spark-stream
for 2 minutes, 9 inches
from grinding wheel shows
deep pitting. Visibility
seriously impaired.



EYE SAVER LENS subjected to identical test shows no appreciable pitting. Visibility is unimpaired.

CALIFORNIA GOGGLE CO. 1651 COSMO ST., HOLLYWOOD 28, CALIF.

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6. Rocker arms for diesel engine
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12. Two throw crankshaft
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EDITORIAL COMMENT

Regional Cooperation Urged

SPREADING further the growing realization that the West is greatly in need of intra-regional cooperation, David B. Simpson, president of the Portland Chamber of Commerce, told the Western Institute for Commercial and Trade Association Executives at Eugene in June that competition between various areas in the West for industries must be intelligent or no one would benefit.

This is the same idea that the Pacific Coast chambers of commerce heard at their meeting in San Francisco last fall, and that Dr. J. R. Mahoney of Utah expounded at the Carson City conference last February where the steel question was discussed. Within state boundaries, it has been put into practice very well, as Mr. Simpson points out, but between the different Western states there is still a big job to be done. Consequently his remarks are directly to the point. He said in part:

"As applied to industry, let me tell you that inter-community cooperation works. Within reasonable limits one can make the positive statement that when a new industry locates there is a proper place for it. The whole coast benefits if a new industry establishes itself where its cost of production, plus cost of distribution, proves to be lowest. On the other hand, industry improperly located is a poor advertisement that the West Coast is capable of properly supporting its industrial institutions. I mean to say that a plant failure is a black mark difficult to erase."

"In Oregon we have entered a new realm in this field of industrial cooperation. Chamber of Commerce representatives all aspire to lure good industries to their city or its environs. One recent prospective establishment involved competitive bidding on the part of 18 Oregon communities. Through concerted effort of Oregon chambers, 17 withdrew in favor of the logical site.

"A second industry of considerable size might have been located in practically any city in the Willamette Valley. At one of those cities the cost was lower than at the others and the higher cost cities by mutual agreement withdrew in favor of the proper location.

"Other instances testify that Oregon's new industry is being properly located by common consent of all Chambers of Commerce. Pride must be pocketed by the promotion organization which can not present the most ideal combination of factors for location of a specific industry. I am proud to say that the Oregon chambers are willing to pocket pride to the end that the state will have a reputation for attracting and holding prosperous industry.

"This practice is also prevalent elsewhere on the coast. Where it is not, I urge it upon you as far-sighted policy. I know that many chambers are engaging in one type or another of inter-community cooperation for the benefit of the entire area. It is a policy to be encouraged. It is a policy to be nurtured and expanded.

"Let us compete intelligently, openly, with cards face up—let us cooperate religiously and zealously—we will build a stronger, more prosperous West for having done so."

Study Those Political Promises

LOOK for a lot of promising from both political parties this fall about saving the West's new industrial structure. Some of it may be sound, and probably considerably more of it either unsound or impossible of fulfillment. It will be well to look these gift horses in the mouth before accepting them. It is vastly easier for candidates and parties to promise than to fulfill, and also vastly easier for voters to accept a gift horse than to get rid of it afterward.

WESTERN INDUSTRY

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OUR COVER PICTURE

* The cover scene, of a log scaler determining the board foot content of a carload of snow-covered Ponderosa pine logs, graphically indicates the fact that the Western pine lumber—Ponderosa, sugar or Idaho white—is produced under difficult winter conditions in forests at high altitudes. The Far West is the most important spot in the nation's lumber industry today, both in present production and in future possibilities.



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IT ALWAYS COMES OUT "DONE TO A TURN"!

① YOU KNOW HOW IMPORTANT timing is to baking. A little too much or not quite enough oven time and breadstuffs come out too crisp or too soggy. That's why in so many bakeries with modern "production line" ovens you'll find Rex Roller chain belts used for driving and timing operations.



③ THIS CLOSE-UP tells the story of Rex Roller chain belts' superiority. Made of the highest quality materials and workmanship, they are built to deliver smooth, positive power for all types of service. Rex Roller chain belts, made to manufacturers' standard dimensions, are available in single and multiple strands.

* * *

Rex Roller chain belts are the answer to almost any problem involving the positive transmission of power or timing of operations. The Rex Man can help you with your chain belt application problems. And for engineering data on Rex chain belts, ask for the 768-page catalog No. 444. Chain Belt Company, 1723 West Bruce Street, Milwaukee 4, Wisconsin.



② LOOK AT THIS MODERN BAKERY. Great sheets of dough are laid upon moving steel plates that are carried through the oven at a uniform speed. Baking and handling time are cut to a minimum and dough always comes out *done to a turn*. For Rex Roller chains are transmitting positive, slip-free power . . . power that keeps the bake goods moving steadily and evenly through the oven.

Steel side plates, heat-treated for strength and toughness, blanked, pierced and broached to insure uniformity of pitch and press fits on pins and bushings.

Alloy steel roller heat-treated for extreme toughness and resistance to wear, then ground to size.



Alloy steel pin, case hardened, ground for accuracy, superior bearing surface. Longer pitch chains furnished with cotter construction.

Alloy, case hardened steel bushing ground for accuracy and press fits in side bars.

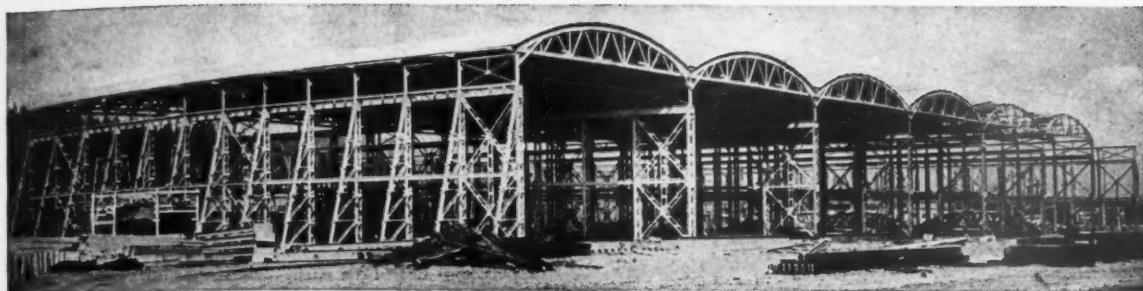


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MATERIALS ARE IMPORTANT- ...BUILD WITH TIMBER STRUCTURES

THE WAR has spotlighted the virtues of wood in heavy construction. Shortages in other structural materials have served to emphasize what many engineers and architects already know—that wood, properly designed and prefabricated, is often a sensible answer to construction requirements.

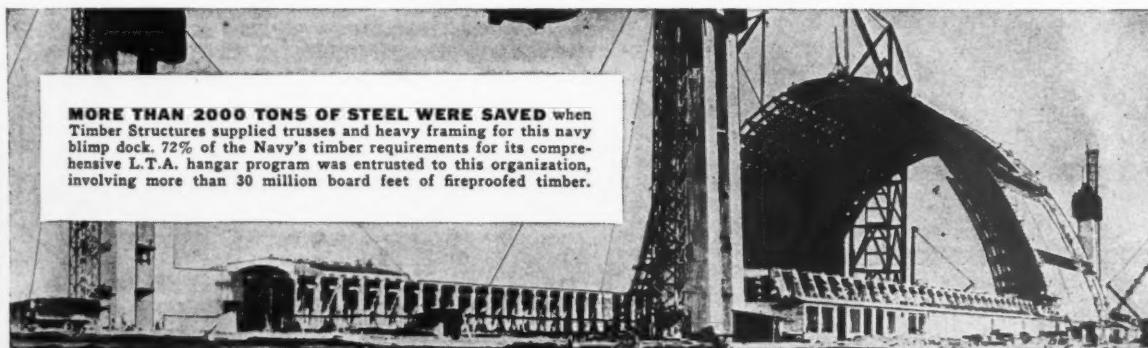
Fulfilling these requirements for timber trusses and heavy framing has been Timber Structures job for years. The virtues of wood—strength, economy, speed in erection, permanence, ready source of supply—have been brought together through the engineering know-how of this organization.

We welcome inquiries on the use of wood or other structural materials for your construction projects. Write to the nearest Timber Structures office for illustrated book on the work we have done, are doing.

THE MARITIME COMMISSION found wood a highly satisfactory construction material in its shipyard program. This huge assembly building at a record-breaking Liberty yard is 240'x860' and contains 143 trusses prefabricated and erected by Timber Structures, Inc.



ORIGINALLY DESIGNED FOR STEEL by the U.S. Army Engineers, this ordnance repair shop was redesigned by Timber Structures engineers for wood. For this building (60'x220') 28 trusses, columns and bracing were prefabricated and erected. Approximately 50,000 bd. ft. of lumber was used in the building.



MORE THAN 2000 TONS OF STEEL WERE SAVED when Timber Structures supplied trusses and heavy framing for this navy blimp dock. 72% of the Navy's timber requirements for its comprehensive L.T.A. hangar program was entrusted to this organization, involving more than 30 million board feet of fireproofed timber.

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→ PREPARED
→ PRODUCED BY

Operating on the biggest advertising budget of its history, American Industry is beginning to prepare the public for the goods it hopes to sell them after victory. With its four strategically located offices, The McCarty Co. will continue to play a leading role on the west coast by serving as advertising counselors to many of the country's leading industrial firms.

Just off the press is this new booklet explaining, in simple, clear language, the fundamental ABC's of hydraulic oil well pumping. This basic educational and promotional piece was planned, prepared and produced for our client, Kobe, Incorporated, to give the entire industry a better understanding of this revolutionary pumping system.

This valuable booklet made such a striking addition to Kobe's regular 1944 media campaign, that almost at once executives of the company felt the impact of fresh interest and added goodwill... creating the foundation for future sales of Kobe products.

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A Complete Industrial Advertising Service Since 1919

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HOW Pan American Airways PACKS **2,100 HOURS INTO A DAY**

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It's thorough. And it's fast.

A swarm of mechanics, working in eight-hour shifts, get the job done in 60 hours — 2,100 man-hours a day.

What helps this swift turn-around are Elastic Stop Nuts. These nuts have been on every Pan American Clipper since 1928. They are on motors, mounts, wings and countless structural parts.

Particularly timesaving are the Anchor Nuts which permit smooth blind mounting. Hundreds of these fasten the covers for inspection openings. These Anchor Nuts* are an Esna development and are used by millions in all kinds of airplanes.

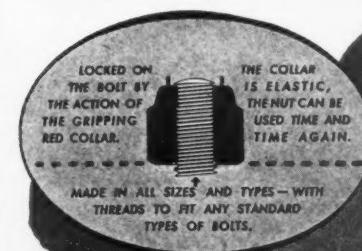
Elastic Stop Nuts lock tight and fast without any auxiliary devices. There's no time wasted in fussing to get them off and back on again.

They lock because of the elastic collar in the top. This collar squeezes in between the bolt threads. It's compressed tight. The nut can't turn. It can't wiggle. It can't shake loose. And you can take it off and

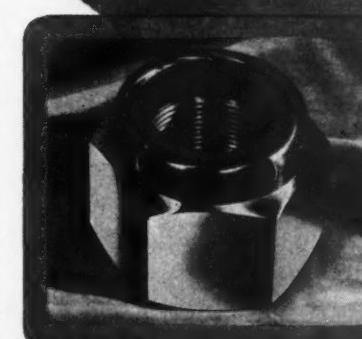
put it on again many times and it still locks.

Every fastened product can be better because of these nuts — can be safer, tighter, quieter, and longer lasting.

So if you have a fastening problem now, or see one ahead, let us show you how these red-collared Esna Nuts can help. Our engineers are ready to consult with you and recommend the appropriate nut.



"ESNA Anchor Nuts allow ready access to inspection openings, yet refasten tight and strong to carry stressed skin loads."



ESNA
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ELASTIC STOP NUT CORPORATION
OF AMERICA
ELASTIC STOP NUTS
Lock fast to make things last
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LINCOLN, NEBRASKA



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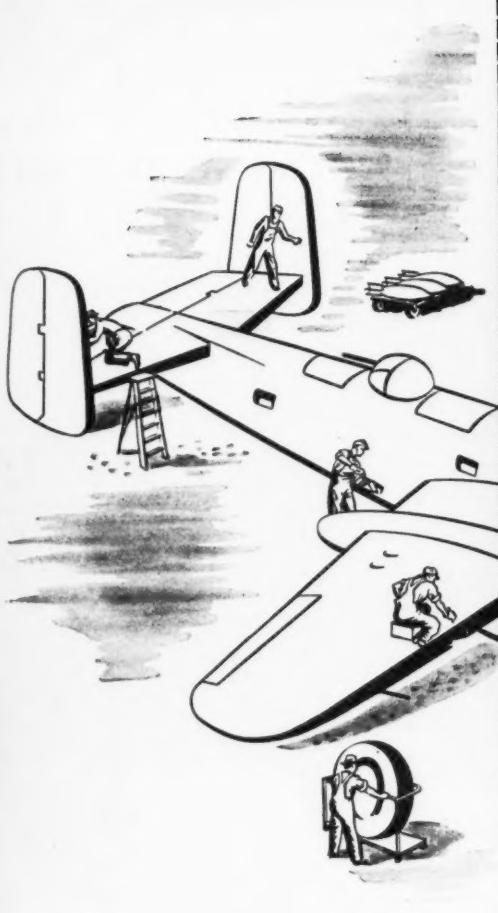
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brunt of heavy loads and give long wear-life. What's more, their construction advantages mean a minimum of replacement cost.

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Manual 65-2C*



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If you saw both "before" and "after" photos of this machine drive you'd agree that two Fafnir Motor Cartridges caused a revolutionary change.

The "before" picture would show the motor, running on sleeve bearings, mounted in a horizontal position. From it, a belt drove a jackshaft, which in turn was belted to the 48" rock emery mill.

Now look at the "after" picture! The extra capacity of Fafnir Motor Cartridges for *thrust* as well as *radial* loads permitted the motor to be mounted vertically. The machining cost for the change-over was only \$18.00. The jack-shaft was eliminated, and the motor belted directly to the emery mill.

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TAKE ONE or all four answers



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THE PROBLEM OF EMERGENCY POWER

Here's a safe, easy way to extend electrical distribution circuits—Roebling Parkway Cable laid directly in a shallow trench. Eliminates time and expense of conduits, manholes, poles, etc. for lighting, signal and fire alarm circuits.

THE PROBLEM OF PRODUCT GRADING

Coal mines are swinging to the use of these bound-edge woven-wire screens for accurate grading. Roebling gives them the specialized steel that can take it in any grading operation, and the know-how that weaves and binds them right. Can such screens be tailor-made to your use?

THE PROBLEM OF ABSORBING SHOCK

Many a coil spring gets its start from a roll of Roebling Tempered and Blued Round Wire, made to hit "specs" on the nose for dimensions, steel analysis, temper and finish. This division also makes flat and shaped wires, strip steel . . .

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P-38's Get Wings *Sooner* when **SKILSAW** is on the job!

Weber Showcase & Fixture Co., of Los Angeles, sub-contractor to Lockheed, uses SKILSAW Model "825" for fast, accurate skin splitting before applying reinforcing members to leading edge of wing sections for famous P-38's.

**SKILSAW
MODEL "825"**

Here's another example of how war production speeds up when smart engineers put SKILSAW to work.

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Let Skilsaw Field Engineers help you now to plan "cooling-up" for peacetime production with Skilsaw's new post-war tools.

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MAKE AMERICA'S HANDS MORE PRODUCTIVE

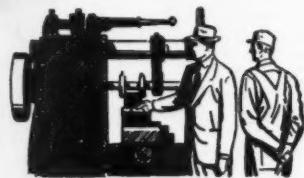
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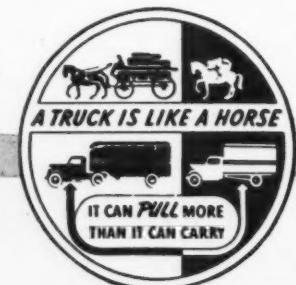
Says Charles Webster, Maintenance Superintendent, Grocers Packing Co., Los Angeles, packers and processors of dehydrated foods: "Our Fruehaufs are just about 'tops' in efficiency and rock bottom on maintenance cost!"



TWO DRIVERS ONE DRIVER

**TRAILERS HELP TO LICK
THE MANPOWER SHORTAGE**

Save Manpower, as well as horsepower, by converting trucks to Truck-Trailers. Train new drivers by use of Fruehauf's Driver-Training Sound Slide-films, obtainable through your nearest Fruehauf Branch.



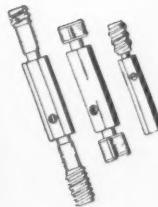
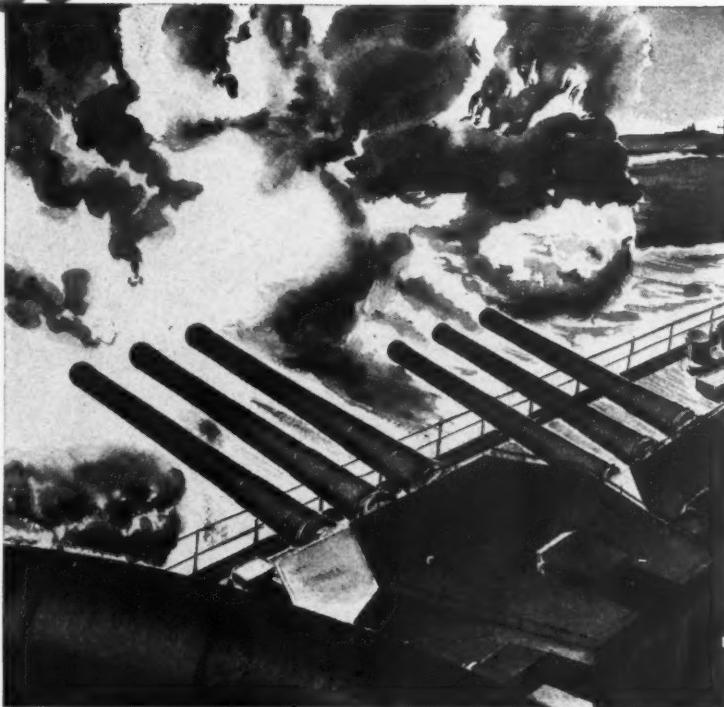
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Reg. U. S. Pat. Off.

**FRUEHAUF
TRAILERS**

TRUCK-TRAILER TRANSPORT IS DOING AN ESSENTIAL JOB FOR ALL AMERICA

IT'S "GO" OR "NO GO"



For Launching the All-Out

Navy warships are standing off shore, their guns hurling steel at the enemy. Bombers are overhead, dropping their loads of destruction. Then, when the mighty combined barrage has lifted, landing craft speed forward and our soldiers swarm ashore.

This is the ALL OUT, the supreme assault, planned in minute detail. This is no time for something to go wrong, for equipment to fail. When the "chips are down" our weapons MUST work. And how they work is determined far in advance, in our war plants,

by men who check the accuracy of each vital part. It's the "GO" or "NO GO" of the inspector, and the precision of the gage he uses, which keeps faulty parts from reaching the battle front

This is the responsibility of Kobe Master and Reference gages today. They are in use, on countless critical manufacturing jobs where rigid standards of measurement are required. Inspectors rely on them, reject or approve with complete confidence. And their faith is justified. Kobe gages are pro-

duced with the finest equipment obtainable, with pre-tested materials and special treating processes. Kobe's ultra-modern plant has constantly-controlled temperature and humidity. Scientific devices rid the air of dust. Every step in the manufacture of Kobe gages is checked on testing equipment so accurate it records tolerances up to 10/millionths of an inch!

Such perfection in Kobe gages is now largely used for war. Tomorrow it will be a valuable asset to America's peace-time industry



*Master and
Reference* **GAGES**

KOBE, INCORPORATED
3040 East Slauson Avenue • Huntington Park, California

Putting More Power Behind Manpower



Transmitting every ounce of power . . . backing up every man-hour with plenty of smooth, positive power . . . this Baldwin roller chain belt drive helps keep things humming in a rubber plant. It never gets that "tired feeling" or takes time out for repairs.

THE positive grip of Baldwin roller chain belts on sprocket teeth is an important factor to many a factory. For these sturdy chains assure plenty of smooth-rolling power—with no waste due to slippage. The amount of horsepower they're set up to transmit is exactly what they deliver—day in—day out, through years of economical operation.

There's no waste of manpower owing to frequent time-outs for repairs or adjustments with Baldwin on the job.

Once installed, they're there to stay with an absolute minimum of maintenance. Baldwin toller chain belts are quiet, too. They are not subject to annoying slapping or banging.

BALDWIN ROLLER CHAIN BELTS GIVE YOU THESE ADVANTAGES:

1. Not adversely affected by dust and grease.
2. High shock absorbing ability.
3. No pre-load to shorten shaft life—not installed under tension.
4. No power loss regardless of adjustment.
5. Not dependent on set distances between centers for effective and proper operation.

For complete information on Baldwin roller chain belts, call your Baldwin Man or write for your copy of Baldwin Catalog M. Baldwin-Duckworth Division of Chain Belt Company, 352 Plainfield Street, Springfield 2, Mass.



BALDWIN

ROLLER CHAIN BELTS



ANOTHER HEAVY-DUTY JOB
FOR THE SULLIVAN
WG-9 AIR COMPRESSOR

Making furnace plates, ladles and similar long-life pieces of steel mill equipment is a heavy-duty job. At the John Mohr and Sons plant, where this type of work is done, every tool is pneumatically operated . . . and a heavy-duty, long-life Sullivan WG-9 furnishes the air power efficiently and economically.

This precision-built compressor is designed for continuous, 24-hour-a-day service in small plants or for specialized service in larger plants. Here are some of the 25 reasons why your next air compressor should be a Sullivan WG-9 "INDUSTRIAL-AIR" —

1. It is the ONLY single-stage, double-acting compressor with FULL FORCE-FEED LUBRICATION.
2. Perfect fit anti-friction main bearings and interchangeable crankpin bearing NEVER REQUIRE ADJUSTMENT.
3. Cylinder liners and crosshead guides are REPLACEABLE ON THE JOB, making it possible to have a "new" compressor after years of satisfactory service.
4. Valve cage-ports are completely jacketed for high cooling efficiency.
5. The WG-9 is equipped with exclusive patented Sullivan "Dual-Cushion" valves, proved by service and produced entirely by Sullivan.
6. The WG-9 has greater capacity per foot of floor space.

SULLIVAN WG-9 AIR COMPRESSOR
INSTALLED AT
JOHN MOHR & SONS



MAKERS OF
**HEAVY-DUTY STEEL MILL
EQUIPMENT**

The "Industrial-Air" is built in 11 sizes, with displacements from 153 to 822 C.F.M. and pressures from 30 to 150 lbs. Bulletin A-43 contains complete details. Write to Sullivan Machinery Company, Michigan City, Ind., or any Branch office. In Canada: Sullivan Machinery Co. Ltd., Dundas, Ontario.

PRODUCTS

STATIONARY AND PORTABLE AIR COMPRESSORS FROM $\frac{1}{4}$ TO 3000 H.P., PNEUMATIC CASTING GRIPS, FOUNDATION BREAKERS, PORTABLE HOISTS, AND ROCK DRILLS.

OFFICES

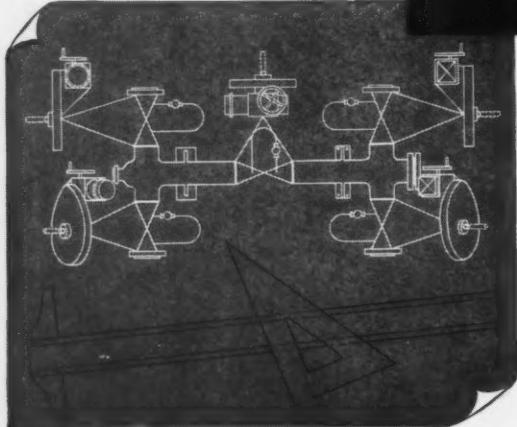
Seattle	San Francisco	Detroit
Boston	Birmingham	Duluth
New York	Knoxville	El Paso
Chicago	Huntington	Butte
Portland	Los Angeles	Scranton
Pittsburgh	Salt Lake City	Denver
St. Louis		Dallas



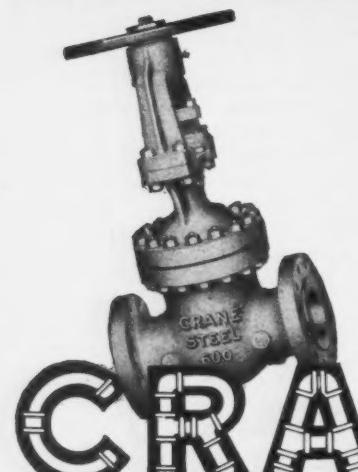
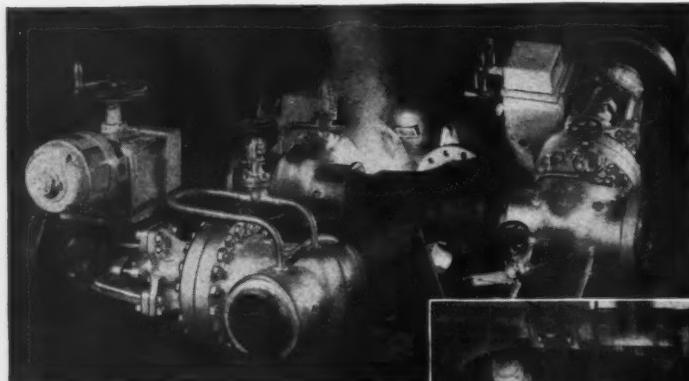
SULLIVAN
AIR COMPRESSORS . . . from $\frac{1}{4}$ to 3,000 h.p.

August, 1944—WESTERN INDUSTRY

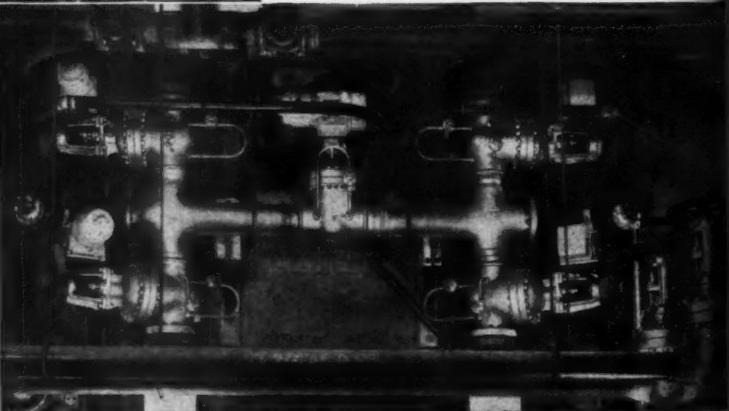
1. ON THE DRAWING BOARD — No matter how complex your piping assembly design may be, all parts—valves, fittings, and pipe—are supplied by Crane. One source of supply—one order covers everything.



2. IN THE FABRICATING SHOP — All designs are completely fabricated by Crane. Proper selection of all parts is assured by the complete Crane line. One responsibility covers all materials and workmanship.



CRANE



Shop-Fabricated Assemblies . . A Complete Service from CRANE

SHOP-FABRICATION typifies Crane complete service to the highest degree. Your blueprint in Crane Pipe Shop means delivery to your installation of a unit meeting every intent of design. For at Crane, no job is too small—nor too large or complex—and absolute adherence to specifications is a matter of pride.

As the world's leading supplier of valves, fittings, and fabricated piping, Crane Co. produces all types of header assemblies of valves and fittings. Completely shop-welded, stress-relieved and tested, and conforming fully to code requirements, such Crane-built units—whether for power or processing systems, high or low pressure—stand out as the finest combinations of materials and workmanship.

The same rigid control applied in making Crane valves and fittings marks every pipe shop operation. From raw materials to finished assemblies, one high standard of quality is maintained by the most elaborate facilities in the industry. Your complete satisfaction with every job is assured by Crane Co.'s 89-year leadership in the piping equipment field.

Crane Co., General Offices: 836 S. Michigan Ave., Chicago 5, Ill. Branches and Wholesalers Serving All Industrial Areas.

3. ON THE JOB — With Crane materials and Crane craftsmanship in every part, one standard of quality guards the entire assembly. Shown is the completed 12 x 8 x 4 in. header assembly of 600-pound cast steel motor-operated gate valve and fittings, installed in a central station.

**VALVES • FITTINGS • PIPE
PLUMBING • HEATING • PUMPS**

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Shop
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cific
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**ON AND OFF 1,034,827 TIMES
... STILL RUNNING PERFECTLY**

Thor

"Armored in Plastic"

ELECTRIC DRILL

Every Original Revolving Part Still Functioning Smoothly After 18 Months

For over 18 months—every consecutive working day since December 17, 1942, a Thor "Armored in Plastic" Portable Electric Drill has been automatically starting and stopping while an indicator counts each completed cycle.

This testing of the action of centrifugal force and accelerations on all parts still carries on after completing 1,034,827 cycles to amass more and more convincing proof of the durability of these Thor plastic-housed production and maintenance drills.

Already proved—even if the test were to stop today—is the durability of Thor motors, gears, bearings and other parts of the unit! Newly proved is the durability, greater protection and perfect alignment provided by the inner metal frame which holds the operating parts without assistance from the drill's plastic housings!



Laboratory view of the Thor "Armored in Plastic" Electric Drill mounted on the apparatus performing the durability test.

This same Thor motor, packing more power per pound of machine than is common... providing these same features of durability and top performance, is the heart of every Thor Portable Electric Tool.

- DRILLS
- HAMMERS
- SCREWDRIVERS
- SAWS
- NUT SETTERS
- GRINDERS

- DRILLS
- HAMMERS
- SCREWDRIVERS
- SAWS
- NUT SETTERS
- GRINDERS

LABORATORY TEST ORDER

Independent Pneumatic Tool Co.

Dec. 17, 1942

Test Item: U14K Plastic Drill

Problem:

Durability under repeated reversal of stress. Determine number of times the drill may be started and stopped before failure of any part occurs. (Brushes excepted.) Note carefully the effect of centrifugal force on motor parts and wear due to accelerations and reversal of stress on all parts.

Method: Continue test until first breakdown occurs.

Arrange apparatus for automatic on and off switching. Each time the drill is turned on it must come up to full speed. Each time the drill is shut off it must stop completely. Full running speed and complete stops must be attained to produce the maximum centrifugal stress in motor windings in both the outward and inward directions. The inrush of starting current should be maximum to secure severest test of windings and utmost stress due to accelerations.

DAILY LABORATORY TEST REPORT

June 15, 1944

Item: U14K Plastic Drill.
Problem: Durability under repeated reversal of stress.
Progress: 1,034,827 on-and-off cycles completed. Each original unit intact and running perfectly.
Total Maintenance: Second set of brushes replaced; standard lubrication.
Conclusion: Test continues.

P. Rebecchi
Test Engineer

For complete information and specifications of all types and models of Thor Portable Electric production and maintenance tools to write today for Thor Catalog



Thor Portable Pneumatic and Electric Tools
INDEPENDENT PNEUMATIC TOOL COMPANY



600 W. JACKSON BOULEVARD, CHICAGO 6, ILL.

Branches in Principal Cities

6200 E. Slauson Ave., Los Angeles, Calif. 1741 First Ave., S., Seattle, Wash.

Copperspun ROTOR



Have You Seen It?

THIS new postwar, general purpose Fairbanks-Morse Motor is available to industry now.

Never before have there been more stamina—more protection—more versatility—built into a motor housing.

You'll have to see it demonstrated to appreciate fully how much this motor can really offer you.

BUY WAR BONDS



Look at

These Features!

- ★ It is a 40°C. motor.
- ★ It is a protected motor.
- ★ It has an optional conduit box assembly.
- ★ It has cross-flow ventilation.
- ★ It has ball bearings—sealed-in and protected.
- ★ It has the exclusive Fairbanks-Morse COPPERSPUN ROTOR.

Write for detailed information.
Fairbanks, Morse & Co., Fairbanks-Morse Building, Chicago 5, Illinois.

FAIRBANKS-MORSE
DIESEL ENGINES WATER SYSTEMS
PUMPS SCALES
MOTORS STOKERS
GENERATORS FARM EQUIPMENT
RAILROAD EQUIPMENT

Motors



Spotlight on the NEWS

WESTERN INDUSTRY
FOR AUGUST, 1944

VOLUME IX NUMBER 8

Heart of the Problem

Good ol' Federal Reserve Bank cuts right through to the heart of the problem (p. 27) in its survey of the postwar problem of the West. It has gone out and asked the manufacturers three simple questions: (1) "What are you going to do after the war?" (2) "How much money are you going to need?" (3) "Where are you going to get it?" From that it isn't so hard to do some intelligent figuring. If government money will be needed, perhaps some sort of an FHA deal is in prospect. Federal Reserve says we have built our heavy industry on shipyards, and that what to do with it is a problem. But didn't we learn back in grammar school that problems were given us to be solved, and that every problem had its answer?

When Uncle Sam Signs Off

Postwar planning ranges all the way from the future outlook of the \$180,000,-000 Geneva steel plant down to how many signs are to be painted in each city. But for the individual manufacturer the main thing to plan is where and how to get some customers when Uncle Sam stops buying. Even though the whole West Coast area may be chock-a-block with war contracts until July 1945 there is a very timely reminder (p. 29) that the planning for customers can't be put off.

Incentive, a Stabilizer

Incentive has been favored as a means to getting more pay for workers and more output for management—or opposed by labor as a speed-up proposition—but another angle from which to consider it is as a means of stabilizing the whole operation of the plant (p. 31). An interesting analytical approach to the question.

War Job Insurance

After all the wondering about how to protect the West from being tied up with war production while the rest of the country is going back to peace-time activity

and getting a corner on all the business, labor, rather than industry, is the first to get some tangible action started. The WPB Management-Labor Committee for the West Coast has decided to ask Washington (p. 36) for a statement of policy regarding job security for the war workers who stay on until the end. In view of the continued drift of labor away from the Western area, they may get some action on the most necessary thing of all—that our war production out here doesn't lag. No market is worth anything until the Japs are cleaned up.

Saving a Bit of the Profit

Even though the Treasury Department may consider all profits excessive, still there are ways to keep a little of what you have made and still be within the law. Some suggestions along that line may be found on p. 33.

Constant Training Programs

Not until the restless feet of war workers and discharged veterans cease itching will in-plant training go out of style. Shifts in the production picture may throw a training job on many a plant that has gotten by without it until now. Two interesting examples of training are described in this issue, that of the Skagit Steel Works (p. 35) and of Libby, McNeill & Libby and other canneries in Oregon (p. 52).

Battle of the Colorado

The Colorado River treaty pending with Mexico is a hot potato, and no mistake. *Western Industry* has indisputable proof (p. 56) in a letter from a group in western Colorado who believe that our Washington report on the situation in the May issue didn't present the situation properly. By grapevine we also heard that the Washington report created somewhat of a stir in Portland. The treaty comes up before the Senate Foreign Affairs Committee in due course, and there we may have a regular League of Nations battle over it.

GI Joe, Capitalist

All the weight in the scale won't be on the side of shipyard and aircraft shutdowns when the war stops. GI Joe is going to have a lot of money to put into business ventures, farms and the like, and the discharged veterans are likely to pump considerable capital into the Western reservoir, according to our Washington news letter (p. 42). Farming ventures by veterans with governmental assistance after the last war were largely wasted time, money and effort, but the story may be different in the future. With thousands of boys from elsewhere in the country enthused about coming West to live as a result of having had their training out here, the West may get some real benefit.

For the Materials Handler

For the materials-handling minded reader, there are three offerings in this issue. The first (p. 34) tells how Basic Magnesium, Inc. saved by building a hot metal car to transport metal in fluid form direct from electrolytic cells to refinery, instead of cooling it down to solid cheeses and handling twice. The second (p. 37) describes packaging for export and the third (p. 64) is about Boeing's handy packaging device for machine screws.

Child Labor Penalties

It cost a Tacoma match factory more than four grand to get squared up with the government for violating the child labor law (p. 66). That ought to be tip-off enough for most everybody to take a hasty look at what the law really means; accordingly a summary is provided also.

What's Ahead in Portland?

The Portland Committee for Economic Development has just completed a post-war employment survey (p. 54) which indicates a drop of 51 per cent from the present figure of 290,000, but 44.4 per cent above the prewar level. But if you take out the shipyard figures, it amounts to only 20 per cent above prewar and 38 per cent below the present time.

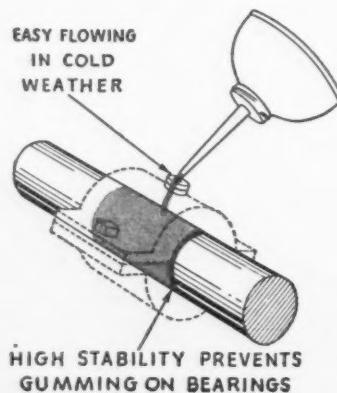


STANDARD ENGINEERS NOTEBOOK

VOL. 1, NO. 4

Stable, uniform oil for general external lubrication

Because it is pure solvent-refined mineral oil, carefully manufactured, Calol Red Engine Oil may be used for almost all ordinary lubrication in an industrial plant.



It has a low carbon residue and pour test rating that gives it a wide application range. It is exceptionally stable in use and does not form objectionable deposits in or around bearings.

Calol Red Engine Oil is recommended for engine bearings, machinery and shafting that are lubricated by squirt cans, ring-, chain-, bottle-, drop-feed- or wick-oilers. It is also used in some circulating systems.

It is sold in five grades: 11, 15, 18, 20 and 25. The lighter grades may be filtered for re-use.

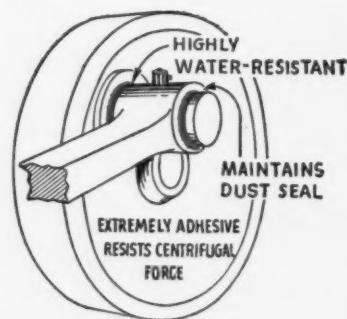
Standard Fuel and Lubricant Engineers are always at your service. They'll gladly give you expert help—make your maintenance job easier. Call your Standard Representative or write Standard of California, 225 Bush St., San Francisco 20, California.

Grease lubrication under severe operating conditions

When heavy bearings are subjected to shock loads, must operate in dust or water conditions or when a lubricant that will not readily throw off is needed, Calol Multi-Service Grease is recommended.

This black colored grease contains a heavy oil blended into its special soap base. The oil spreads over bearings a tough film that is difficult to rupture or displace. The special soap base provides a seal against water and dirt.

There are seven grades of Calol Multi-Service Grease. Numbers 0 and 1 are used for enclosed light gears and gun-lubricated heavy machinery. Two and Three are widely used on mill machinery. Four, Five and Six are exceptionally stiff and are particularly adapted for use on plain, low-speed journal bearings with large clearances.



STANDARD OF CALIFORNIA

WEST'S FINANCIAL NEEDS IN RECONVERSION MEASURED . . .

Federal Reserve Bank Makes Survey of Capital Situation of Manufacturers to Determine Requirements of the Future

WHILE local agencies of various kinds have been endeavoring to measure up the "work piles" their communities, the Federal Reserve Bank of San Francisco has been quietly engaged on an overall survey of what will happen to industry in the West after the war.

It has set out to ask the individual manufacturers for confidential information on what they expect to do when war contracts stop, how much money they will need, and whether they can get it from other than

governmental sources. Aggregate figures should give the first comprehensive indication of the postwar industrial picture.

Survey of the San Francisco Bay area and Seattle-Tacoma districts is already well under way, and will be followed by a Southern California study. It is an enlargement of a more limited survey begun by the C.E.D.

Whether the West will need additional capital beyond what is already available from ordinary commercial sources will in all probability be made apparent by the

survey. Professor Samuel May of the University of California, chairman of the state's postwar committee under the old National Resources Planning Board set-up, contends that as the war-time industrialization was a measure forced on the West, therefore the federal government should help to get the West back to a normal peace-time status.

If government assistance should be needed, it may possibly take the form of credit insurance, similar to the FHA system, by which loans would be made

Ahead lies another full year of jobs like this one at Kaiser, Vancouver, from which heavy industry in the West has largely stemmed.



through private banks, insured at low unit cost. This would be principally for the smaller plants.

Chairman Maury Maverick of Smaller War Plants Corporation broached a multiple rental plan for the largest war plants while on the Pacific Coast in July. This would be comparable to Bush Terminals in Brooklyn, and to the deal worked out by which the old Amoskeag Mills in Manchester, N.H., once the largest textile producer in the country, housed a large number of smaller independent businesses. The principle of this would be joint use of power plant, freight sidings and other facilities.

He also proposed a super-highway and super-airport system and predicted that the Okies, Arkies and others who have flocked to the Coast for war jobs will stay here, jobs or no jobs, because even with only occasional employment they can do better than in the region from which they came.

Dr. J. R. Mahoney, director of business research at the University of Utah, in his recent publication "The Western Steel Industry," advances the opinion that lower prices for steel in the West, as a result of the new local steel mills, will increase the demand for steel for various purposes and lead to a much greater amount of fabrication than has been done out here in the past.

Federal Reserve Analysis

The bank's monthly review says that shipbuilding, more than any other industry, has been responsible for the vast increase in employment and population on the Pacific Coast since 1940, and its demand for materials and supplies has been the principal factor responsible for the rapid expansion and development of the heavy metals and metal working industries in the Twelfth Federal Reserve District.

"When this pressure relaxes, as inevitably it will, new problems will have to be faced," the Bank says. "In this region, a new set of industrial facilities has been created and an additional labor supply recruited and trained on the job. The problem here is not one of reconversion to previous use, but rather one of finding new markets and alternative uses for the industrial labor and equipment which have been superimposed upon the previous industrial structure of the district."

How sharp this contraction in shipbuilding will be was pointed out by Rear Admiral Vickery, vice-chairman of the U. S. Maritime Commission, while on the coast last month. In 1943 the United States built about 20 million tons of shipping, of which more than half was turned out on the West Coast, while this year's production will be somewhat less because better type ships are being constructed instead of the Liberties.

After the war, he predicted, the replacement tonnage will amount to about a million tons a year, and the mass production yards will largely pass out of the picture. Lower building costs in Great Britain,

where wages run \$20 to \$25 a week, as against \$60 to \$70 in this country, are likely to be an important factor.

In discussing the shipbuilding development, the Federal Reserve Bank brought out the following points:

Total value of contracts placed with 200 West Coast shipbuilders since June 1940 approximates seven billion dollars, aircraft nearly eleven billions. Peak employment in these industries in 1943 was nearly double, and is currently 75 per cent above the total of all manufacturing employment in the district in 1939.

More than 600,000 people are currently employed in some 200 plants from San

Diego to Bellingham. Probably over 100,000 others are engaged in such ancillary industries as steel works and foundries, machine shops, forging and engine building works and prefabricating establishments.

Shipbuilding on the coast is an assembly operation rather than a strictly manufacturing process to a much greater extent than in the older shipbuilding region, making it possible to utilize relatively untrained labor.

Many Subcontractors

Up to the end of 1943 prime contracts involving \$50,000 or more for materials and equipment used in shipbuilding had been placed by government procurement sources with some 380 concerns located in 45 counties throughout the Twelfth Federal District. Shipyards themselves also placed a substantial volume of subcontracts, and in March 1944 the Mare Island Navy Yard, which farmed out little or no work prior to the war, had about 190 prime contractors and more than 300 subcontractors in California, Utah, Colorado and Wyoming, employing some 25,000 persons.

Steel requirements alone of the Pacific Coast shipyards have averaged three million tons a year for the last two years, a quantity far in excess of the productive capacity of the Western steel industry.

Before the war, eight or nine local mills having an aggregate rolling capacity of less than a million tons of finished products a year, produced about one-third of the total consumed in the district.

Now an entirely new Western steel industry has been created, centering in the Geneva and Fontana plants, but with additional facilities established also by older plants. Geneva was designed for an annual capacity of 700,000 tons of plates and 200,000 tons of structural and semi-finished products. Fontana's rated capacity is 300,000 tons of plates and 170,000 tons of structural shapes and bars a year.

With estimated annual requirement around 2,500,000 tons of hull steel at current rates of production, the coast demand for shipbuilding steel continues to exceed the capacity of the Western steel industry. Total steel ingot capacity west of the Rockies has been increased from 1,100,000 tons in 1941 to well over 3,000,000 tons in 1944.

The foundry and forging industry of the West has experienced a similar expansion between June 1940 and September 1944, approximately 25 million dollars having been laid out by some 40 foundry and forging concerns in enlarging their facilities.

Marine engine building, of both steam and diesel types, has also been greatly expanded. Prior to the war none of the larger types of marine engines were produced in the West.

Capacity of Iron and Steel Works in the West—1944

(Prepared by Dr. J. R. Mahoney, director of business research, University of Utah, from American Iron & Steel Institute figures and personal visits to plants)

Finished Hot Rolled Steel Products:	Net Tons
Plates	1,025,200
Structural (heavy)	389,344
Wire rods and flats	382,300
Bars (other than concrete reinforcing)	359,880
Rails	347,200
Bars (concrete reinforcing)	306,564
Tie plates and splice bars	149,744
Shapes (light)	102,464
Black sheets, hot rolled annealed	67,872
Black sheets, hot rolled	24,304
Hot rolled strip	8,736

Other Finished Products:

Wire—plain galvanized, barbed and twisted	375,320
Springs	65,920
Bolts, nuts, rivets, spikes	61,040
Nails and staples	57,008
Galvanized sheets	55,664
Steel castings	38,595
Electric weld pipe	35,840
Fabricating reinforcing bars	31,360
Fencing	30,912
Rope and strand	15,000
Fabricated steel towers	11,200
Press hammer and forging	9,520
Structural angles—light	7,952
Full pickled black sheets	3,360
Miscellaneous	202
Bars and bronze castings	123

Consumption of Iron and Steel Pipe and Fittings—11 Western States

1940	1941	1942
612,173	775,600	711,225

Consumption of Rolled Steel Products, 7 Western States, 1937

	National Resources Plan Board	Kaiser Steel Company	National Economic Committee
Plates	185,000	185,000	157,543
Sheet	303,000	346,000*	305,153
Strip	38,000	-----*	37,136
Tin plate	400,000	400,000	436,603
Total flat			
rolled	926,000	931,000	936,435
Structural	128,000	128,000	140,096
Bars	300,000	313,000	411,238
Tubular	375,000	381,000	266,434
Rails & tie plates	105,000	154,000	103,575
Other	200,000	30,000	50,932
Total	2,034,000	1,937,000	1,908,710

*346,000 includes both sheet and strip.

When Things Won't Sell Themselves, What Then?

IT DOESN'T take much crystal-gazing to see very clearly the outlines of a buyer's market looming on the industrial horizon. To some manufacturers whose merchandising abilities have grown flabby and soft on the rich diet of a wartime seller's market, the vision of the rough, tough, hard-and-fast merchandising days ahead brings on a state of fright resulting in sheer paralysis of the brain.

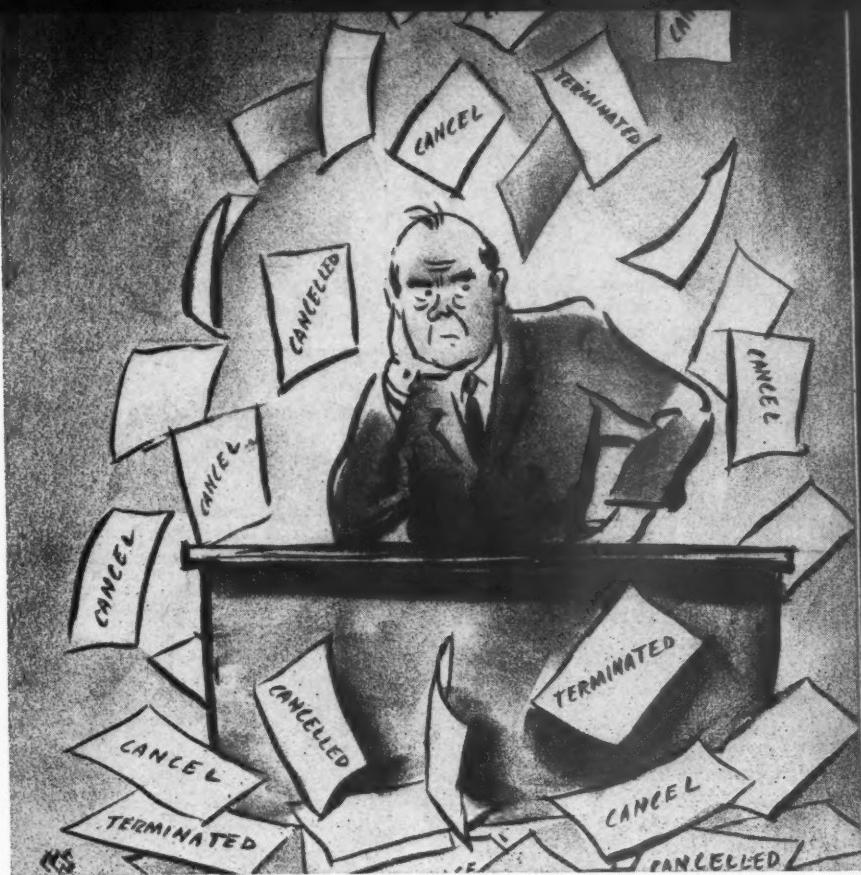
This coma produced by fear of what lies ahead is far more dangerous than any threat the future can produce. Sound merchandising plans made now—and they can be made now—will establish a firm foundation for maintaining sales volume in a seller's market which, after all, is the normal market condition under which our industries have operated and grown.

To get some idea of what planning now can accomplish—and what serious penalties will surely result from lack of merchandising plans on "V" day—let's consider the relative positions of two hypothetical Western companies a couple of days after Germany has taken the count and we have the Japs close enough to defeat so that the WPB, War Labor Board and the OPA give the go-ahead on non-essential production.

First, there is the case of the Joe McGee Manufacturing Company. Before the war, Joe did a fairly good business in specialty agricultural equipment, plus a sizable vol-

Can't Grow Customers Overnight!

The real postwar question is not "What can I make for civilian production?" nor even yet "What can I sell?" Even more important is "Am I ready to sell it?"



(Any resemblance to any living person is intended only for those temporarily dead from the neck up)

ume of contract machine work for other local manufacturers. Not long after Pearl Harbor, he landed his first subcontract for ship gadgets, and by the end of 1942 even Joe had trouble recognizing the old joint.

His original crew of 12 employees had grown to 120; the original equipment he had acquired bit by bit was lost in the forest of new automatic screw machines, turret lathes, radial drills, milling machines and similar items costing sums that Joe used to dream about. During 1943, Joe turned away more business than he accepted, and still had enough to keep the shop humming on a three-shift schedule.

Early in 1944, Joe began to hear a lot about postwar planning. He thought about it quite a bit, but it was pretty hard to recall the 12-man shop days, and even harder to remember what the old McGee one-man beet cultivator even looked like. He casually wondered how Harry Doe, his old dealer at Rio Vista, was making out these days—he hadn't been in touch with Harry or any of the rest of his dealers since late in 1941 when he had to tell them all that the McGee line was out for the duration.

So what? Joe had lots of ideas about improving the McGee cultivator when the time came. And Western farmers would be raising sugar beets after the war the same as ever, and somebody would be out

there to sell them equipment. Right now, the job was to keep the shipyard expeditors happy.

Time and the Allied armies marched on. Came unconditional surrender from Germany, and a firm Allied base of operations in China. Came, too, a flock of contract cancellations, a wholesale reduction of WPB restrictions on manufacture of civilian goods, and a whopping big shock for our pal Joe McGee.

But the Honeymoon Finally Ends

It didn't take long to get the first postwar model of the improved McGee cultivator ready, but the shock came when he started contacting his old distributors. Dealer Harry at Rio Vista had sold out; the new dealer had an exclusive contract with the Iowa Farm Gadget Company and wouldn't touch Joe's line with a 10-foot pole.

Down at Salinas, Joe's old dealer was ready to take back the line, but was worried because the Portland Beetmaster Company's Salinas dealer had flooded the market with literature about the new Super Beetmaster and had been making demonstrations in the territory for the past two months. All the growers were waiting to see how the first few Beetmaster units would make out; meanwhile, they weren't buying anything.

Up at Sacramento, Joe's new dealer tried hard but nobody remembered the McGee

cultivator except the few who had tried to find the manufacturer in order to get parts, and they were pretty sore. They had looked through all the farm papers, but couldn't find a word about the McGee outfit, because Joe stopped advertising back in 1941.

Within a few months, Joe was—to put it mildly—in one hell of a fix. Less than half his pre-war dealers were available to him for one reason or another; his competitors had grabbed off the best dealers in every territory; competitive machines, heavily advertised and smartly merchandised, were definitely preferred by farmers and Joe had to drop his prices to get even a slim share of the business.

Worse still, it seemed that wholly new beet-growing areas had opened up in the intermountain region and the former far-western beet sections Joe had cultivated so well were now going in heavily for soy beans and judzu seeds—a new breakfast marvel with 91 vitamins and a profitable return to the grower. Joe didn't know a dealer or grower east of the Sierras, and the lack of recognition was mutual.

The Man Who Planned for It

Leaving Joe in the midst of his uphill fight toward a rather dubious postwar position, let's consider the case of Jim Doakes of the Doakes-Western Stamping Company. Like Joe McGee, Jim Doakes got into war work up to his neck and beyond. His shop expanded 'way beyond its pre-war size, and he acquired plenty of new equipment.

Unlike Joe McGee, Jim Doakes not only thought about postwar planning early in 1944, but he also did a very unusual thing—he actually made some plans.

Jim's pre-war business was about equally divided between contract job work for other manufacturers, and the production of his own line of specialty building hardware. His wartime products involved none of his prewar customers, but did involve the same kind of work, i.e., metal stamping. Jim logically figured that metal stamping was his postwar field, and that his two former divisions—contract work and manufacturing—would be his best postwar bets.

Jim realized that much had happened to his former markets during the couple of years he had been devoted to war work, so he decided to bring his knowledge up to date.

Down to Brass Tacks

First, he tackled his contract stamping division customers. How many of his old customers expected to make postwar products utilizing stampings? Were these stampings going to be larger or smaller in size, different in shape, made from new materials, or altered in any way that might require new stamping facilities or new methods?

Would there be enough heat-treating or special finishing to warrant adding these

Postwar Selling Begins Now!

Many Western manufacturers are putting in such long hours on production that they "haven't got time" for any sales planning right now. This article is a gentle reminder of what may happen to them if they don't look ahead. It will be followed by others dealing with practical aspects of selling.

facilities? How many new outfits—prospective customers—had entered Jim's logical market area these past two years? Who were they, where were they, who did they buy from?

Jim found the answers to these and other pertinent questions. Then he prepared a comprehensive, factual booklet on the Doakes-Western Stamping Company; its pre-war products, its present facilities (stressing the new equipment, the new engineering talent, the new staff of trained and skilled workers), the long list of materials such as steel, aluminum, stainless, monel and others it had learned to work with skill and precision, and suggested some possible postwar jobs it could handle for other Western manufacturers.

Jim sent this booklet along with a letter offering experienced help in solving stamping problems, to every one of his prewar customers, and to every new Western metal-working manufacturer he found listed in trade and financial directories. He started conservative advertising schedules in Western industrial trade magazines, using the space to describe his facilities, to offer his engineering services to those planning postwar products, and to solicit inquiries for his booklet.

Finding Out Who to Sell

Next, Jim tackled his own builder's hardware division. His big field had been the home building market—a field in which some profound changes were rumored to be taking place. Previously, Jim had always sold his line through large wholesale hardware houses, contacted by one factory representative. The wholesaler then contacted hardware dealers and building supply outfits, and Jim never knew exactly who finally bought his products—or why.

Looking through his monthly copies of home magazines and building trade papers, Jim could see that several competitors were making very strong bids for the bulk of the business. Jim figured it was going to take some smart merchandising to keep his position in the market, and that he was going to need a lot more information than he now had in order to make intelligent plans.

So Jim had his secretary, and everybody else he could wheedle into it, read architectural, business and home magazines and report on every bit of information they found regarding postwar housing, style trends, prefabrication, etc.

Knowing the architect was a big factor in specifying builder's hardware, Jim bought a list of every architect in the West and sent each one a personal letter containing questions about desired hardware features, installation problems, future building styles and methods, and so forth.

In a few months, he had some very interesting results on hand that gave him a sound, practical basis for designing, distributing and selling his new hardware line. He couldn't actually manufacture a stock of the new items, but he made up samples, had finished production drawings ready and drew complete plans for starting production on a moment's notice.

Then Jim pulled his old sales manager back out of his wartime job in the priorities department, and together they planned a complete merchandising program. Literature was prepared for architects, giving complete data on the application, installation, and features of the Doakes-Western line.

Getting Ready to Go

Complete sales catalogs for distributors and dealers were prepared, ready for printing. Dealer helps—literature, counter and window displays, mounted models, etc., were planned ready to be made up in a hurry. A conservative space advertising program was inaugurated in Western home magazines, hardware journals and architectural publications.

Then Jim's sales manager took to the road to line up wholesale outlets, particularly in a number of new areas where Jim's survey indicated postwar home-building would be highly active. They bought mailing lists covering every hardware and building supply house in the West, and mailed out attractive bulletins announcing the new line and describing all the sale helps and advertising promotion planned for launching it. The literature and display material was produced as soon as reports on product samples sent out to architects and building contractors indicated that the line was basically okeh.

Easing Into the Home Stretch

What happened to the Doakes-Western firm on "V" day is by way of an anticlimax. As soon as wire went out to their wholesalers announcing that production was under way on the new hardware line orders came in. The well-cultivated contract stamping field bore a thriving, lucrative crop of contracts—all the easier to harvest, because many of them had been worked out in detail in Jim's own engineering department.

Jim Doakes took a look at his "buyer's market" and decided he liked it. And for good reason—the world has never seen a market with so many buyers needing so many goods, and with so much money to spend. The only trick is in knowing beforehand who they are, where they are, what they want, how to reach them—and how to sell them.



* A time and motion study check, an early factor in determining pay base rationings, being charted on the switch gear assembly line.

INCENTIVE—Standardizes Operations

INCENTIVE pay, as a basis for increasing war production from existing labor or supplies, and as a basis of compensation commensurate to added effort expended by more efficient workmen, is the question of the moment in management circles.

So far, management, labor leaders, and the workers themselves approach this problem from different angles, with many misunderstandings and decided misgivings as to the fairness or potential success of such a plan.

The many persons who have seen the incentive plan work in numerous eastern plants, have been giving encouragement to its acceptance and adoption in the West Coast areas.

Through the War Training Program the national government recognizes the importance of an incentive method of payment and is sponsoring and financing courses in Time and Motion Study Technique. These courses are prepared to give the participants an understanding of how an incentive system can be fairly and economically established in various types of work.

The plan differs from, although it is related to, other devices for increasing pro-

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duction. It differs from a straight piece-work plan, in that it can more easily be made to cover a much wider range of work. It differs from other old systems, in that the rate of time value, once established, remains unchanged unless the operation is changed or the method of performing the operation is changed; it differs from the "contract work" idea, inasmuch as the workers operate as a contracting body, while workers under the incentive pay plan operate voluntarily. The incentive plans produce a fluctuating bonus, otherwise take-out pay is today limited by wage ceilings.

Our modern conception of incentive pay is simply paying a person, or group within a department, for production beyond standard. It may be on an individual or a group basis. All members of the producing group benefit by the increased production, regardless of what portion of the operation they may be performing. The plan

may be extended to cover all persons in a department, whether or not they are directly concerned with production.

It is an established fact that all persons in a department can contribute toward increased production. Machine setup men, material handlers, stockmen, cranemen, and even the sweepers can do much toward raising the performance level of the group or department through their efforts in servicing the productive employees, in the proper handling of material and by keeping the work-area in proper condition.

The incentive pay plan is a departure from "work-as-you-wish," or "as-you-feel-that-you-can-get-away-with" ideas. Workers under the plan, its proponents claim, would do the "policing" within their own groups, because any individual who lays down on the job incurs the disfavor of the group. This is a minor detail of the entire system as the management will have a definite measure of each group's output, and will not depend on the workmen. However it is a normal reaction for any conscientious workman, to feel that he is holding up his end, or to know that he is as good a workman as the other fellow. Thus a friendly and productive rivalry can be maintained.

between groups or departments, without any feeling of policing being done by each other.

From the management angle, paying workers for increases over standard production results in lowering the unit cost of the product. The capital investment and overhead costs remain practically the same.

The incentive system establishes definite or standard costs for any given operation, giving management a known labor content for plant layout, machine loading and production control. It also establishes definite costs for any given operation or part which may be used for estimating or sales negotiating purposes.

It is the theory that during a certain period, a group may be expected to produce a certain amount. On the basis of a standard day's work, for the base pay, the general feeling is that these workers could produce more if there were an incentive to do it. Incentive pay simply says "If you produce more than the established average, you will be paid in direct proportion to that production which is greater than the normal or standard."

As the matter of incentive pay is studied, it becomes obvious that the basic question involved is that of establishing a normal rate of production over which incentive pay would become effective.

It is on this question of normal production that management, labor and individuals on both sides become involved often to the extent of failing to reach agreement. This is the reason so many different and wrongly designed or administered systems have been tried. Many tried systems have been so complicated, or so misunderstood, as to have caused general objection toward incentive systems.

A few far-sighted individuals, however, in both management and labor have actually thought the matter through, and their conclusions are pertinent to the vital question of increasing production for our war effort, particularly now that new sources of labor are drying up.

Appeals to the workers' pride and patriotism are only temporary, as they soon become lax after listening to these appeals or pleas from leaders, or from war personnel. Apparently, the only method to maintain an increased rate of production is to establish a pay incentive to keep all of us interested in keeping output up to capacity.

With regard to the matter of establishing normal production, what is normal? Was "normal" during the depression, when every man worked in fear of losing his job, or was it immediately after the war rush started, when many workers were placed on jobs which they were then as yet untrained? A normal production rate cannot be established by arbitrary methods, by either management or labor. A standard fair to both management and labor, however, can be determined by the application of the principles of time and motion study.



* Not GI Joes creeping toward the front; just the home front Joes and Josephines making torches sputter and sparks fly outdoors at the Commercial Iron Works, Portland.

Approved time study technique is based on a normal worker performing work under unusually good conditions. A normal worker is the one to whom all others are compared. He is the man who has been on the job long enough to be reasonably proficient in his work. He is not as efficient as a person with just the right aptitudes, who has been on the job long enough to be most proficient. The normal is established by definition, rather than mathematically.

There are established performance rating or levelling charts prepared for use in properly rating or levelling each worker's effort and skill. These charts are designed to make adjustments for differences in the skill and effort shown by the workers being studied to establish the standard on which incentives are based.

Many people express the thought that their work is too varied, or that they have a job shop instead of a shop performing a highly repetitive or easily measured operation. If the work is broken down into various operations or elements, it will be found that many of these elements or operations occur in practically every job performed in the shop, thus making it possible to establish averages or standards on much of the work. Data can readily be compiled to cover the variables in the work, making it possible to measure nearly every type of job for properly administering an incentive system.

The greatest savings in vital manpower can be made by a study and improvement in production procedure or methods. The improvements do not necessarily have to be obtained by the installation of costly equipment. Important improvements often can be made by a careful analysis of the processes or operations, eliminating unnecessary work, and installing simple practical work reducing methods. There is hardly any industrial operation which could not profitably be subjected to a detailed methods study.

What will become of sub-standard operators in an incentive group may be a problem, but should not prove too dif-

ficult because a person who will not, or cannot perform the work he is now doing, would do far more for the war effort if he were transferred to work for which he is better fitted.

Installation and supervision of a proper incentive system is not a scheme to raise wages, despite wage freezing edicts of our government. It merely pays an incentive for better-than-average performance. It is possible for our present available workers to increase their output, thus it is the same as finding a new supply of trained labor equivalent to the increased output of those now employed.

An incentive system can only be successful through the proper cooperation and planning of both management and labor. Established on a sound economic basis, fair alike to both management and men, incentive systems for many years have contributed much to the success of many of our country's leading industrial organizations. But it should be understood that the challenge to improve performance applies to management no less than to labor. Under basically sound incentives, well administered, everyone gains.

Survey for Cotton Manufacturing Proposed

An arrangement for a specific market and production survey of the possibilities for manufacturing cotton in California from the cotton grown in the state, to be made by Ernest Nelson of the textile division of the University of Southern California, is under consideration by commercial organizations of three cotton growing counties, Kern, Kings, and Tulare.

The survey is to determine what part of the Western market could be served with cloth made from the kind of cotton grown in California, and how feasible it would be to establish one or more mills to provide enough cloth to meet the amount of business available. Commercial representatives from leading California cities in both ends of the state are lending their cooperation.

Easing Up the Tax Burden on Excess Profits

S one means of minimizing excess profits taxes, Melvin D. Wilson, Los Angeles attorney, called attention at the recent Conference on Industrial Re-adjustments at U. S. C. to the common sense suggestion of keeping out of the corporation which has a bad excess profits tax picture.

"Obviously," he said, "when a corporation is in a bad excess profits tax position, it will be reluctant to take on additional business, especially of a somewhat different kind."

"If the business is rather closely held

and prospective business becomes available to some of the officers or stockholders of the company and it is difficult to determine whether it is offered to the individuals or the company, it might be possible for the individuals to take on the business individually or in a partnership, and thus avoid the corporate taxes. In this type of situation it is important, of course, to recognize the danger that the new business being taken by an individual officer or shareholder might be considered as a dividend by the corporation.

"The corporation may, on the other hand, organize a subsidiary and provide it with a considerable amount of capital so that it would have a good excess profits tax position. The parent company might be able to do this without increasing its own excess profits taxes if it is already subject to the 80 percent limitation provision.

"Instances have been observed where an individual had such standing and prestige and experience that he could get business and would take a substantial contract in a new corporation and have that corporation complete the contract.

"Then he would take a new contract in another new corporation and dissolve the old corporation and as stockholder pay capital gain tax on the profits; the old corporation, in the meantime, not having paid any dividends as it needed its capital and surplus in the operation of its business.

"He kept this up through a series of corporations, keeping his individual tax down to the 25 percent rate. The corporation took advantage of the 80 percent limitation and the Post-War Refund. The net result was better than if he had operated the business as a sole proprietor, or if the corporation had carried out all the contracts and paid substantial dividends."

SNAPSHOTS AT THE N.A.M. PACIFIC INSTITUTE ON INDUSTRIAL RELATIONS. Top row, from left: Robert H. Mead, Merchants & Manufacturers Assn., Los Angeles; Kenneth H. Shaffer, gen. mgr., Industrial Relations Dept., Standard Oil Co. of Calif.; F. H. Whelon, supt. industrial relations, San Diego Electric Railway Co.; R. R. Grunsky, industrial relations director, J. D. & A. B. Spreckels Company, San Francisco; Kenneth M. Miller, industrial relations mgr., Matson Navigation Company, San Francisco; H. W. Valentine, Jr., San Diego Electric Railway Co.; E. V. Linsenbard, personnel director, Westelectric Castings, Inc., Los Angeles. Second row: E. J. Pollack, mgr. industrial relations, Avion, Inc., Los Angeles; Ben Gorchakoff, personnel director, General Controls Co., Glendale; H. O. Roberts, personnel director, Servel, Inc., Evansville, Indiana; K. F. Gleed, director of industrial relations, Adel Precision Products Corp., Burbank; Chas. E. Allred, director of personnel, Menasco Manufacturing Co., Burbank; E. J. Sullivan, personnel mgr., Kinner Motors, Inc., Glendale; Walter A. Corbin, asst. personnel director, Aircraft Accessories Corp., Burbank; E. L. Dalany, personnel director, Forest Lawn Memorial Park Assn., Glendale. Third row: F. J. Lackey, Consolidated Steel Corp., Orange, Texas; A. W. Abrahamsen, personnel director, Norris Stamping and Manufacturing Co., Los Angeles; Arthur K. Barnes, industrial relations mgr., Johns-Manville Corp., Huntington Park; Louis W. Clark, industrial relations director, Clarke Aero-Hydraulics, Inc., Pasadena; Sherman W. MacDonald, asst. resident mgr. lumber division and director of industrial relations, Red River Lumber Co., Westwood; Major Harry D. Williams, 9th Service Command, U. S. Army; E. R. Bosley, Jr., director of public relations, Consolidated Steel Corp., Los Angeles; R. N. Simpson, pres. Davenport Manufacturing Co., Los Angeles; Dr. David F. Jackey, U.C.L.A.





* Tilting the car by crane dumps the hot metal into the crucibles.

Fluid Handling Saves At Basic Magnesium

TWO recent improvements in materials handling at Basic Magnesium, Inc., based on the transporting of material in process in fluid form instead of converting into solids and then liquefying once more, have resulted in important savings in labor and costs.

In the first case, putting molten metal into "thermos jug" cars for transporting direct from electrolytic cells to the refinery did away with the necessity of cooling the metal into "cheeses." In the second, instead of mixing raw ingredients with peat to make a mud to be dried into pellets, the peat moss is eliminated altogether and the operation considerably simplified.

"BMI" achieved much publicity for the notable feat of building this huge plant, the world's largest electro-chemical unit, on the Nevada desert near Las Vegas, in record time to provide magnesium for the war effort. This hurry, at a time when the war outlook was entirely lacking its present rosy hue, resulted in many inefficient methods which the Anaconda management have gradually been eliminating since they took over last year.

In the original process, the magnesium metal was hand-laded out of the electrolytic cells and molded into cheeses which were either stored or moved to the refinery, necessitating extra handling and remelting. To avoid this, the process control staff of BMI designed hot metal cars

which are literally huge thermos containers, of 2-ton capacity, with inner and outer sheet metal skins with approximately six inches of insulation between.

The metal is now pulled from the cells mechanically through a recently perfected "bazooka" which consists of an airtight hood placed over the cell top, the hot metal being forced mechanically out of the cell into the tube.

There is an appreciable saving in labor in that one man now does the work in a few minutes time originally requiring two men over a longer period. The new method eliminates the hand dipping process.

In transporting the hot metal in the new hot metal cars there is practically no heat loss, the hot metal car going directly to the refinery where it is pulled alongside the

crucibles and tipped mechanically by crane. The whole operation takes less than two minutes.

Other economies are made possible by the use of the new car. Non-metallic cell melt which used to go to the refinery in the cheeses is now recovered and pumped back into the cells. Due to less loss through burning and other factors, the use of the cars increases the amount of metal reaching the refinery from each cell. In addition, the output in the recovery plant is expected to increase by 4 or 5 per cent.

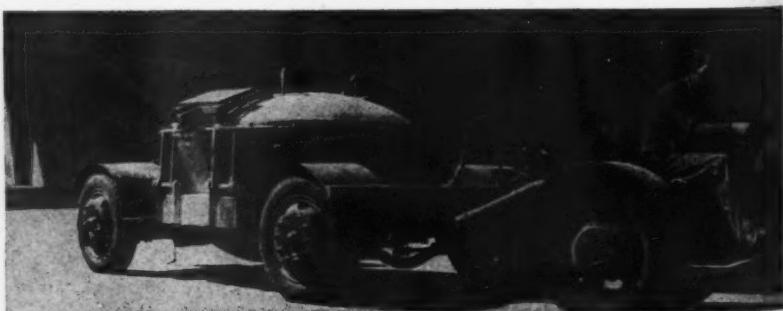
The greatest cost-reducing factor to date at Basic, however, has been the elimination of peat, which made possible the scrapping of a vast amount of "Rube Goldberg machinery," establishing a number of shortcuts and straightening out the flow-line.

Originally, the various ingredients, principally magnesium concentrates, calcined magnesite, powdered coal and peat moss flowed from their respective storage bins, were weighed, mixed, carried on a belt conveyor from the ground level to the top of the Preparation Building and then conveyed along the top of the prep plant where they were dumped as a dry mix into mixers (pug mills), mixed with magnesium chloride solution into a mud, passed through extruders and made into briquettes or pellets. The briquettes, in turn, were passed through precoolers, thence into tunnel kilns and finally into breakers.

The new method consists of the transporting of the same raw materials, excluding peat, from their storage bins, weighed and passed directly to mixer where the mix is treated with a magnesium chloride solution and passed from the mixers as a liquid slurry onto a troughed conveyor belt. The conveyor belt carries the slurry forward, the slurry hardening en route.

Breaker knives suspended over the conveyor belt break the slurry on the belt which, in turn, pass over raises caused by elevating the belt on rollers. These, in turn, rebreak the now hardened slurry into small pieces, which then spill off the belt onto a cross conveyor where they are introduced directly into rotary kilns.

These four rotaries capable of meeting capacity requirements replace six tunnel kilns, and 65 per cent of prep plant manpower is saved, plus the peat moss, one of the largest material cost factors.



* Small tractor pulls the metal car from electrolytic cell room to the crucible.

Skagit Steel Works In-Plant Training ..

WHEN government procurement agencies in January 1942 found that their needs could be satisfied by the basic products designed and constructed in our plant, the rapid expansion which followed presented a problem of training the necessary personnel.

Skagit Steel and Iron Works is located in a town of 3300 in the Skagit Valley, 70 miles north of Seattle and at that time had 215 employees, engaged in manufacturing various types of logging equipment, such as loaders, yarders and rail cars. S. S. McIntyre, the president, designed the first gasoline-driven logging equipment, which changed the plant from primarily a repair shop to a manufacturing establishment.

The management of this company is very progressive and when faced with this war need set about immediately to develop a program which would provide the skilled workers needed to accomplish the job we had to do. The company had long depended on sound apprenticeship training to provide skilled workers in the various crafts utilized in our production.

We immediately organized our apprentice training program with the help of the Washington State Apprenticeship Council.

Our boys were indentured under contracts to serve 8,000 hours or 4 years. Regular standards of apprenticeship were set up covering the work experience necessary to become qualified journeyman. In addition we utilized high school boys who worked 24 hours a week in the plant and spent 15 hours at school.

All our apprentices put in 144 hours a year of related instruction in the vocational school classrooms under the guidance of two of our machine shop foremen. The entire apprenticeship program is supervised by a local joint apprenticeship council consisting of 6 members. Three are of management and three are representing the three labor unions having jurisdiction. Our apprentice program provides training for machinists, patternmakers, molders and coremakers.

Fourteen apprentice machinists in various stages of development are now in the armed forces, 12 are presently in training and 10 have become journeyman machinists and are employed by this company as such. Two patternmaker apprentices are in the Navy, one of whom was accepted by the Ship Repair Unit where he could use his skill. We have three patternmakers employed and all have received their training in our shop.

In the foundry we have in training 12 apprentice molders and two coremakers, one of whom is a woman. This group rep-

By THOMAS F. MULLEN
Personnel Director
Skagit Iron and Steel Works
Sedro Woolley, Washington

resents mostly men 30-38 years in age and is the reason they are still employed.

We have had a great deal of success with our trainee program in the machine shop, which attracts older men who start at \$93 per hour and advance by a set schedule of rate increases to the journeyman wage. Under this program an adaptable worker can receive the journeyman rate in 11 months of continuous service. At the present time we have 17 machinists and five welders who have completed their training and we have 23 machinists and four welders in training.

The men participating in this program have come from all walks of life and in many instances their previous experience has been in everything except machine shop operations. For example, one of our best gear cutter operators formerly operated a tavern; another, a lathe operator, was and still is a rural mail carrier. Many were farmers, truck-drivers, clerks and general laborers.

We operated a pre-employment training program under the supervision of the State Board of Vocational Education and in conjunction with our local school authorities, who made all their facilities available for our use. Relations between the plant and the school are exceptionally good and this condition has been of great benefit to all concerned. At the present time we are not using pre-employment because we found that we can train an individual more rapidly on the actual job he is to perform. As a result of this experience we are using in-plant training exclusively.

We have offered various types of supplemental training for employees, such as a course in foundry practices, covering general knowledge on various foundry problems as well as some of the technical background. Attendance is optional, but upgrading of employees which is based on ability mainly also takes employee attendance of such programs into consideration. Training films are made available for various departments and often shown right on the job.

Another feature of our training program and one which we find has benefited us immeasurably is our program for training foremen. We started over a year ago having all of our foremen meet every two weeks in conference under the leadership of our personnel director.



* Trainee Fred Reinert. Learned how to be a machine operator, getting living wages from Skagit Works during training period.

We used the material covering 24 specific phases of foremanship as provided by the National Foremen's Institute as a guide and adapted this material to our own needs. Included were 20 foremen divided into two groups of ten each.

This program was very instrumental in putting over to the foremen the idea that they represented an important branch of management. In many instances these groups were given the opportunity to make suggestions regarding new company policies before they were actually put into operation. As part of this training these foremen participated in Job Instruction Training and Job Method Training instruction.

An important factor in the success of our foremen training program was the splendid cooperation and impetus given to it by top management. All of the company officers and executives took the training before the material was presented to the foremen. The 18 foremen who successfully completed the course were honored by the company with a banquet, and the issuance of a Certificate of Merit.

Postwar Job Security For War Workers

POSTWAR job security for war workers is the hinge for the next door in the maze leading to the answer to the Pacific Coast manpower problem, and the Pacific Coast Management-Labor Committee of WPB and WMC has told the government that it is about time to start looking for that hinge.

After fixing an employment ceiling last fall to keep down the influx of workers, and then putting all hiring and job changing on a strictly war needs priority basis last month, the government now has to find some way to stop the drift of labor out of the area.

Desire to find jobs with postwar security seems to be the reason for the drift. So the Management-Labor Committee, meeting in San Francisco July 7, asked William K. Hopkins, retiring regional WMC director, to make known its views to Washington, and to ask that the government formulate a policy with respect to the cancellation of war contracts and their geographic distribution in the final stages of the war, so that the Pacific Coast will not be required to continue a war economy to any greater degree than the rest of the nation.

"The economy of the Pacific Coast is in grave danger," said Dean Ballard, manager of the Distributors Association of Seattle, a management member of the committee, who declared that the Pacific war gives every indication of lasting two years beyond the end of the European war.

"If we are required to stay on a war footing until the very last day of the war in the Pacific, we will wind up with some fine shipyards and aircraft plants while the East will be well along with its reconversion."

Minimum Needs

Orders on file with the U. S. Employment Service early in July for jobs to be filled, within the ceilings set last October and not including things in the offing, such as command construction, totalled 110,000 for the Coast. By areas, including Nevada, the figures were:

Southern California	53,000
Northern California	27,000
Oregon	17,000
Washington	13,000
Nevada	3,000
<hr/>	
	113,000

Chairman McNutt of the War Manpower Commission is hopeful that by geographical transfer enough people can be brought to the West Coast, and that priority referrals and control of availability certificates will help to stop the drift away from the coast.



• Installing guns in ball turrets at the San Bernardino (California) Army Air Depot.

Al Hartung, regional CIO director for Oregon, a labor member, said many workers in Northwest war plants, particularly aluminum plants and shipyards, are inquiring about job opportunities in the lumber industry.

"If workers had any assurance that something would be done to protect them against the greater risk they are running by staying on essential war production as compared with taking non-war jobs, we could be more certain of having the workers we need and where we need them," Hartung said.

Two possible methods of working out the problem have been suggested by Clinton Holden, vice-chairman of WPB and WMC; first, that people who stay on war jobs to the end be given priorities for peace-time jobs; second, that federal unemployment insurance be provided to supplement the state unemployment insurance programs.

A working man's conception of the reasons for the drift away from the coast has been presented by two Portland men long connected with union labor, Hugh Fagan and Fred Lunger. Theirs was an unofficial survey, in which they said they talked to more than 2,000 workers.

Here are the four principal reasons for leaving the Portland area, which obviously are representative of the entire coast: Uncertainty as to their work, insufficiency of overtime employment, dissatisfaction with bus and street car transportation, and difficulty in obtaining sufficient gasoline to drive to and from work.

"Chief cause of dissatisfaction of workers in the Portland area is one of bewilderment," the Fagan-Lunger statement declared. "From Pearl Harbor until today, the workers have been victims of uncer-

tainty. They never knew from one day to the next what it was all about.

"Management has never taken the trouble to explain changing conditions in yards—never told the men why shipbuilding programs were altered overnight, sometimes altered (in some yards) 30 times a month.

"Workers eager for at least the semblance of security have been afraid to tie themselves up in any definite way, such as buying homes, cars, farms."

The workers have been praised on one day, then cursed on the next; lauded for their work, then accused of slacking, Fagan and Lunger said. They asked that management tell the workers the reasons why programs are upset in the yards and plants.

These two men said the average workman is sick and tired of hearing about the "big wages" he is supposed to be getting, and that a man and wife with two children, living in Vanport, have about \$45 left in the weekly pay check after deductions for bonds, taxes, hospitalization and union dues.

It costs industry \$188 every time an employee leaves his job, according to the Merchants & Manufacturers Association of Los Angeles, figuring that the cost of labor turnover in that area is nearly \$1,000,000 a month. Of this amount, \$14 is lost when the person decides to quit, slows up his work, spends time in exit interviews, and so on.

Approximately \$65 is spent for advertising, interviewing, testing and placing the man who takes the quitter's place. Money also is spent for training a new employee, and spoilage from unskilled labor costs employers.

Estimates on the cost of individual turnovers vary from 55 cents to \$430.

Checkmating the Old Man Who Put the Salt in the Ocean . . .

WAR in the Pacific put a large number of American manufacturers into the export business unintentionally, bringing them face to face with a problem they hardly knew existed, much less were prepared to meet. That their shipments would in a vast number of instances be ruined by rust resulting from tropical rains and heat, that boxes and crates would be thrown overboard from ships to lie in the water until they could be picked up, or dumped in the mud along beaches, was an unpleasant surprise.

Until the Army and Navy showed them colored motion pictures of handling conditions in the Pacific and the appearance of the shipments after arrival at destination, many could not believe these conditions to be possible.

For most manufacturers and distributors, solution of the problem was beyond reach. Now it is under control, as the result of the establishing of private business firms engaged entirely in packaging goods for export, through whose facilities the shipments are funneled. They are located in the San Francisco Bay area and Los Angeles, with others likely to be set up shortly in the Pacific Northwest.

Although set up as a war expedient, the

system opens the way for a peace-time exporting aid that will overcome the handicaps and losses suffered in pre-war times by shippers to the Far East.

These packaging firms operate under general specifications laid down by the Army and Navy, who have been doing pioneering work on the export problem for some time. As each item appearing for shipment is likely to present a particular problem, however, the answers in many cases have to be worked out by the packaging firm under Army or Navy supervision.

The Army and Navy specifications resulted from the trouble experienced with breakage in export shipments from the Atlantic Coast. This was due to flimsy crates and boxes, or to carelessness in packing. Packaging firms were set up in that area and the trouble has largely ceased.

In the Pacific area, however, the rust and corrosion and lack of harbor facilities at destination points presented an additional problem. Tropical humidity itself is the cause of unbelievable amount of rust, and on top of this is the condensation problem resulting from great variation in temperature between night and day. Then there is the corrosion from salt-laden air to which shipments are exposed enroute or after

landing and the danger of water penetrating the container as the stuff is taken ashore.

Army and Navy supply depots take care of their own packaging for the most part, and a few manufacturers who ship in very large volume have packaging departments. Most civilian manufacturers and distributors, however, take advantage of the facilities offered by the packaging firm.

The pioneer of these concerns on the Pacific Coast, Export Packaging Company, has two plants in San Francisco and one in Oakland and is handling everything from small packages weighing less than a pound up to 14,000-lb. diesel generators, and from single items to straight carload lots shipped from eastern states.

This type of packaging business is a specialty operation for the most part, filling rush orders and handling hundreds of miscellaneous items. The firm mentioned above, which started in business last January and now has 300 employees, recently had to handle one shipment of 10,000 pounds overnight, so that it could be shipped out by airplane to the Mediterranean the next morning.

Preparation for overseas shipment in
(Continued on Page 38)



* To forestall what happens in the Pacific's relentless climate, protective measures for export shipments include rust prevention treatment, wrapping in grease-proof paper, dipping in wax sealing compounds, packing in moisture-proof bags. Here are typical operations.

(Continued from Page 37)

cludes treatment with rust preventatives, use of a dehydrating agent on items from which corrosion-proofing cannot be readily removed, wrapping in greaseproof paper, dipping in wax sealing compounds in many instances, lining boxes with moisture-proof bags when the shipments are destined for points where they are likely to be thrown into water or mud and taking other precautions as needed.

In the case of heavy and bulky articles where bringing into the packaging establishment would increase costs considerably, a crew is sent out to the manufacturing plant to perform the packaging operation there.

Correct labeling and stenciling is also done, thus remedying a frequent complaint by the armed services of crates arriving with no marks at all, or so nearly obliterated that the name of the consignee and nature of the contents are unknown.

An important part of the work is making out the packaging slips, so that the container is checked to insure every part is actually in the box. Actually the packaging firm takes care of the entire shipping problem, not only preparing the individual parts or items, but attending to crating and strapping suited to the type of handling to be encountered at destination, and also handling the bill of lading. The service enables the contractor to bid without running the risk of unknown packaging costs.

Chinese Aircraft Factory in S.F.

China Aircraft Corporation, an entirely Chinese organization, has been incorporated in San Francisco and is building a factory at 122 15th Street. Within a year over 3,000 Chinese workers drawn from local sources are expected to be engaged in producing airplane sub-assemblies under a contract with Douglas. After the war the operators may go farther on their own account.

Dr. S. C. Hu, an outstanding aeronautical engineer of China, and holder of the Salisbury prize for the highest graduate scholarship record at M.I.T., formed the company, and 30 large Chinese families of San Francisco are interested. Shuck Ho, president of the San Francisco branch of the Chinese association for the promotion of aviation, is chairman of the board, and B. S. Fong, chairman of the China War Relief Association of America is president.

Develop Utah Water

Development of Utah's water resources less than one-third developed at present, is the aim of the newly organized Utah Water Users Association, with William R. Wallace of Salt Lake City as president. He was for 20 years chairman of the old Utah Water Storage Commission. Gus P. Backman, secretary of the Salt Lake City Chamber of Commerce, is temporary manager.

Urge Standard Car Floor Height

Urging a standard distance from the rails to the floor of the freight car, J. C. Milne, traffic manager of Skinner Manufacturing Company of Omaha, told the Central Western Shippers Advisory Board meeting at Salt Lake City in June that some cars are so low it is almost impossible for one man to pull an average truck load from the car.

"These low cars", he said, "cause the loads to fall off the trucks or if a lift truck, pallet system is in use the tail end of pallet will drag on car floor, stalling the load half way up the apron."

"Difficulty is experienced in loading this type car also. If the pallet does not catch on the way down, the load tips forward and spills, and the truck comes down the slope at such speed the man is in grave danger of being injured. In my experience the first time this happened, man, truck, load and all went right out the door on the other side of the car. The next time considerable damage was done the car door as it was closed."

More Utah Coal

Utah coal production this year will reach 7,250,000 tons, compared with 6,400,000 tons, in 1943, according to B. P. Man-

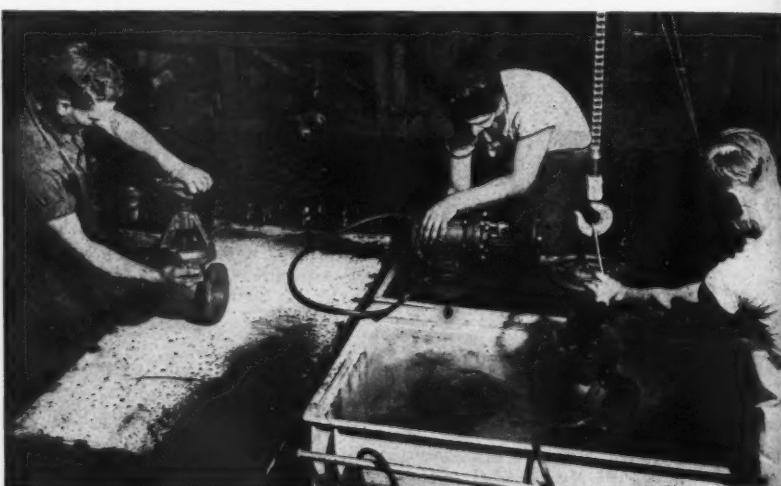
ley, secretary-manager of the Utah Coal Producers Association. Shipments to the Northwest and to seaboard and ships have increased over 300 per cent in tonnage since 1940 and 1941.

Purchase Arrowhead Rubber

National Motor Bearing Company, Inc., of Redwood City, California, manufacturers of oil seals, have purchased Arrowhead Rubber Company of Los Angeles, assuring control of a supply of synthetic rubber flanges. Arrowhead continues as a subsidiary, with Harry Franklin remaining as president, while Lloyd A. Johnson, president of National, becomes chairman of the Arrowhead board of directors. Frederick E. Barth, manager of National's industrial division also becomes a member of the Arrowhead board.

Photographs Handy

Photographs of employees required under war-time regulations should be kept after the war is over to facilitate remembering the identity of the employee if he comes up for re-employment at a future date, it was suggested by H. O. Roberts, personnel director of Servel, Inc., at the N.A.M. Pacific Institute of Public Relations.



• TESTING OPERATIONS at Los Angeles Steel Casting Co. Worker at left in top picture prepares for 100-pound air-underwater test by assembling globe valve seat and plug, while operator in center assembles an angle valve and attaches flange and hose. Man at the right submerges globe valve. After this test the valve is further tested for hydrostatic pressure by method shown in illustration at right. Large circular framework is equipped with hydraulic cylinders mounted in positions that enable them to close off the openings in all types of fittings to be tested. After all the openings are sealed, pressure equal to three times the working pressure for which the fitting is designed is introduced and maintained until thorough inspection is completed. Equipment tests up to 12 inches in size and can apply pressures up to 6,000 pounds.



Coal
to the
have
tonnage

THOMAS TRUCK of Keokuk



5th WHEEL WAGON TRUCK

Series 2400 Wood Frame

- Ball bearing steel 5th wheel, easy swivel
- Strong steel angle 5th wheel supports
- Safety type tongue will not drop to floor
- Tongue held in vertical position when not in use
- Deck: Smooth seasoned 1" hardwood stock
- Superstructures removable or locked
- Wheels: Molded-on rubber or smooth semi-steel
- Hyatt roller bearings. Hardened outer races, grease fittings

The series 2400 Thomas wagon truck, pictured above with type E superstructure. Corner pockets for steel tube stakes are standard. They serve as an interlocking device to assure lasting rigidity and strength. Series 2400 is made in 10 platform sizes and 10 capacities. Catalog No. 43 gives full description.

Over 1000 different "Job-Suited" superstructures for Thomas 4 wheel trucks illustrated in Thomas new catalog No. 43. A few of them are shown around the border of this page. . . Write for catalog today.

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4 & 6 wheel . . . 11 platform
sizes . . . over 20 capacities.



JAK - TUNG TRUCKS

Hardwood deck, with or without
steel frames . . . standard models,
heavy duty models and the new
lift truck Jak-Tung.



WAGONS

5th Wheel Wagon truck.
Hardwood or steel frames.
10 platform sizes, 10 capacities.
. . . Also Safety Wagon
trucks in 15 platform sizes.



TRAILERS

Industrial foundry and warehouse
trailers. 5 basic models.
7 capacities. Manual and automatic
hitches.



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Hardwood and steel. Balance
and non-tilt types. 4 and 6
wheels, 15 types.



2 WHEEL TRUCKS

Hardwood and steel frames.

For every material and freight
handling job. 46 types.



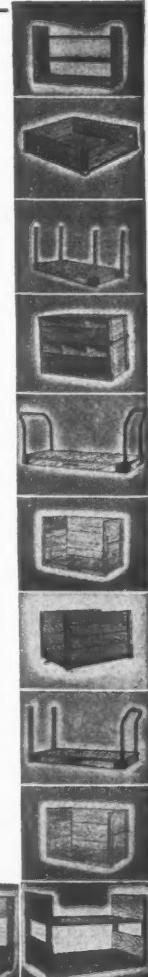
CASTERS

A major part of our business.
New catalog illustrates 18 different
casters in hundreds of sizes.



WHEELS

Metal and rubber and leather
in a dozen types and in hundreds
of sizes.



HOW STEEL STRETCHES THE SYLVANIA LINE OF "COMPLETE PACKAGES OF LIGHT"

Government release of steel for fluorescent fixture fabrication enables Sylvania to round out its line of "complete packages of light" to fit all industrial and commercial general lighting requirements.

Now there are SEVEN INDUSTRIAL UNITS

Continuous-Row Type

Back into the line come these outstanding Sylvania Fixtures with steel reflectors, designed primarily for continuous-row or end-to-end installations. They are made with the same high quality materials available in 1942.

Single (4-foot) channel top-housing

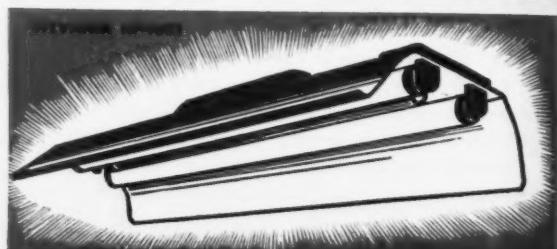
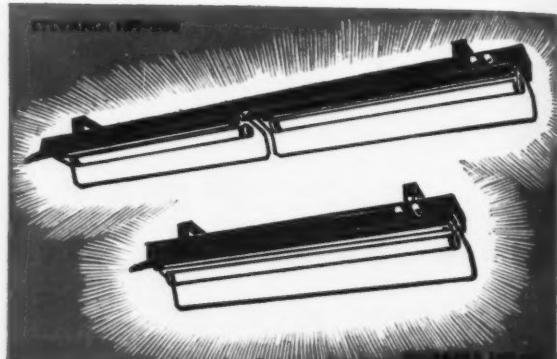
HFF-104—two 40-watt lamps, for continuous-row mounting
HFF-154—three 40-watt lamps, for continuous-row mounting

Double (8-foot) channel top-housing

(Continuous wire-way enclosure reduces cost of continuous-row installations)

HFF-208—four 40-watt lamps, for continuous-row mounting
HFF-308—six 40-watt lamps, for continuous-row mounting

All models come completely equipped with lamps, ballasts, and starters — pretested and ready for immediate installation.



All-Purpose Type

The famous Sylvania "Fixture of the Future," which has proven so popular in war industry, is now available with a reflector drawn from 20-gauge steel, with a reinforcing lip. Finished with durable synthetic enamel. For either continuous-row or individual mounting.

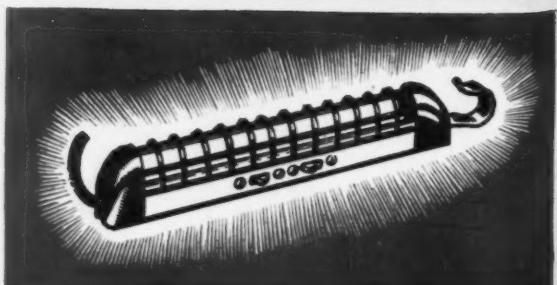
HF-100S steel reflector has knockouts that provide for easy conversion from two to three lamps. The streamlined top-housing in all models has knockouts that make almost any type of mounting possible. Supplied in "complete packages of light" with lamps, starters, and ballasts, pretested, wired, and ready for immediate installation.

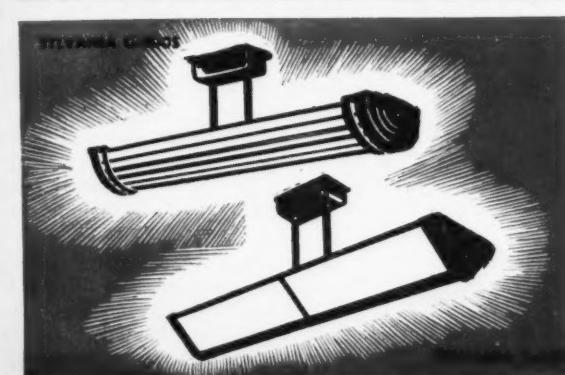
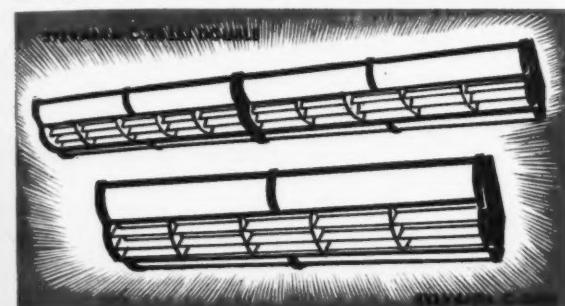
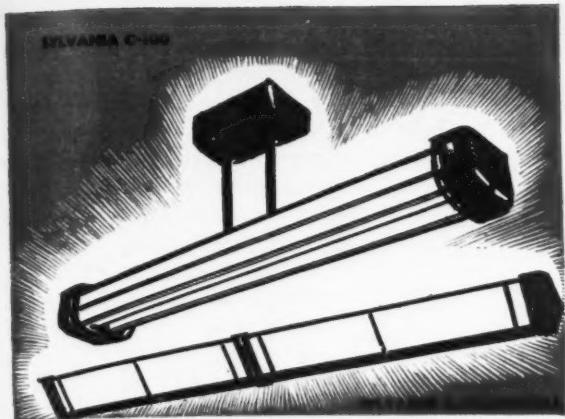
HF-100S—two 40-watt lamps
HF-150S—three 40-watt lamps
HF-235S—two 100-watt lamps



Portable FLUORESCENT WORK LIGHT FOR INDUSTRY

P-7 Sylvania Extension Cord Lamp makes fluorescent light portable for the first time. Compact dimensions — 10 $\frac{1}{4}$ " x 1 $\frac{3}{16}$ " x 1 $\frac{7}{8}$ ". Goes anywhere the hand can reach in close-quarter work. Cool and adequate light from a 6-watt Sylvania Fluorescent Lamp is safe and efficient. Steel guard prevents lamp breakage. Handy hook leaves both hands free to work. Operates on 110-125 volts, 60-cycle, AC only.





Now there are SEVEN COMMERCIAL UNITS

Two-Lamp Shielded and Unshielded

It is now possible to resume the manufacture of this handsome and adaptable series. All models have steel reflectors and employ 40-watt lamps. This variety of models will make for wider fluorescent application to the commercial and institutional field.

Two 40-watt Lamps

- C-100 unshielded with pendant
- C-101 shielded with pendant
- C-113 unshielded surface-mounted
- C-115 shielded surface-mounted

All models are supplied with Sylvania Lamps as "complete packages of light."

Louver Type

These highly efficient fixtures are decorative in appearance but functional in design, with diffusing panels on each side of the lamps and louvers directly beneath. Equipped with four 40-watt lamps. Steel reflectors.

Four 40-watt Lamps

- C-205S individual surface-mounted

Four-Lamp Shielded and Unshielded

These Sylvania Fixtures, which are ideal for stores, offices, laboratories and hospitals, now are equipped with 20-gauge steel reflectors finished with synthetic enamel. New design hinged end-caps and hinged diffusing panels make for easier and speedier maintenance. Supplied complete with four 40-watt Sylvania Fluorescent Lamps, Dua-Lamp Auxiliaries, and Starters — pretested and ready for immediate installation. Available with or without pendant.

Four 40-watt Lamps

- C-200S unshielded, surface-mounted, individual
- C-201S shielded, surface-mounted, individual

Leading Manufacturer of Fixtures in the Fluorescent Field

IF YOU HAVE A PROBLEM TO WHICH FLUORESCENT
LIGHTING CAN NOT BE APPLIED, WHY NOT CONSULT SYLVANIA ENGINEERS?

SYLVANIA "COMPLETE PACKAGES OF LIGHT"

Industrial Fixtures

HFF-104	()	C-100	()
HFF-154	()	C-101	()
HFF-208	()	C-113	()
HFF-308	()	C-115	()
HF-100S	()	C-205S	()
HF-150S	()	C-200S	()
HF-235S	()	C-201S	()
P-7	()			

Commercial Fixtures

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Dept. WI

Please send me information on the fixtures I have checked.

Name _____

Title _____

Firm _____

Address _____

City _____ State _____

Population Plan For The Western States

WASHINGTON, D. C.—A plan which might bring 25,000,000 new population into the West, meaning the two-thirds of continental U. S. between the Mississippi and the Pacific, was discussed here the past week by Oswald F. Schuette and the representatives of the chambers of commerce of San



Diego, Los Angeles, San Francisco, Portland, and Seattle.

The Schuette Plan is based upon the G. I. law which has just been signed by the President. Mr. Schuette is a Chicagoan who has represented Chicago

newspapers in Washington and Europe, and who has a wide, vigorous, and realistic understanding of this country, and of the habits of Americans.

We understand the Westerners at the conference introduced the plan at the meeting of commercial organization secretaries who met early in July at Eugene, Oregon. Schuette is a deep student of American history. He also is the descendant of one of the families which rebuilt Chicago after Mrs. O'Leary's cow kicked over the lantern.

By ARNOLD KRUCKMAN

He can give you a vivid picture of what Americans will do when there seems to be nothing that can be done. He thinks the West, particularly the West beyond the Rockies, should have an industrial development after the war which can be comparable with the land development of the West after the Civil War. He looks upon G. I. Joe (and G. I. Josephine) as possessed of the same spirit for industrial pioneering as their grandfathers and grandmothers had for pioneering the unbroken land of the prairies.

Schuette gave the representatives of your chambers of commerce an outline of the great migrations that started with the postwar period of the American Revolution, and followed the Mexican War, the Civil War, and the Spanish-American War, and demonstrated the veterans of this war, in place of small land grants, will be financed by the government in a manner that makes all previous incentives picayune.

Schuette points out there are already 2,000,000 veterans of this war casting about where they may go, and what they may do. When the war is over, there will

One of the best-informed writers at the Nation's Capital, Arnold Kruckman, presents each month authoritative comments on political developments and their practical application to industry of the West. Any reader who wishes additional information may write to him directly, using business letterhead, at 1120 Vermont Avenue, N.W., Washington, D.C. Inquiries will be answered free of charge. You also are invited to contact him personally in Washington. Copies of pending congressional bills may also be obtained free of charge.

be approximately 10,000,000 former soldiers and soldières, as well as sailors, marines, and their feminine service complements, who will restlessly wonder what to do and where to do it.

He bases some of his plan upon the well-known fact that the psychology of men and women who have been touched by war service always leads them to go to far places to try new experiences. They do not like to go back to the humdrum of former backgrounds. And he says it is certain the 10,000,000 war workers who are released from their jobs with their 15,000,000 dependents, will be affected by the same wanderlust. To these millions of veterans of the battlefield and the battle-factory he adds wives, children, mothers, fathers, and the rest who follow in their wake.

Also, he points out that the banks are choked with the funds accumulated by war workers which they have not been able to spend. And he demonstrates convincingly each veteran, male or female, as the result of the G.I. law, will be financed by the government with capital resources not less than \$5,000 per person, and running in many instances as high as \$10,000.

It is this potential capital, in the aggregate, totaling from \$50,000,000,000 to \$100,000,000,000, that may largely be used in the West to buy farms, homes, start new businesses, and set in motion the various smaller enterprises the government is endeavoring to prompt the veteran to undertake. It is Schuette's idea the transplanting of this human energy and this capital not only will give the steel mills and the aluminum and magnesium plants west of the Rockies an outlet for their products, but will create a market for the products of the factories of the East.

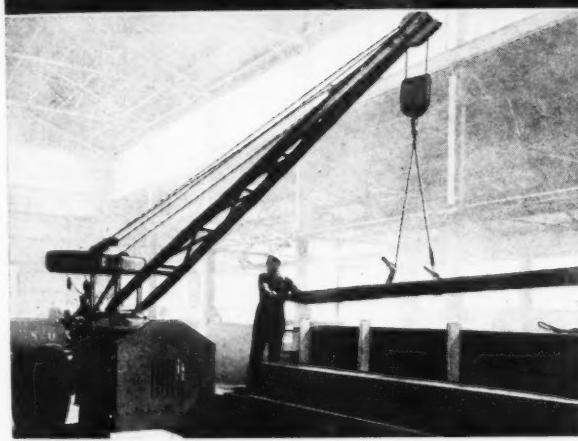
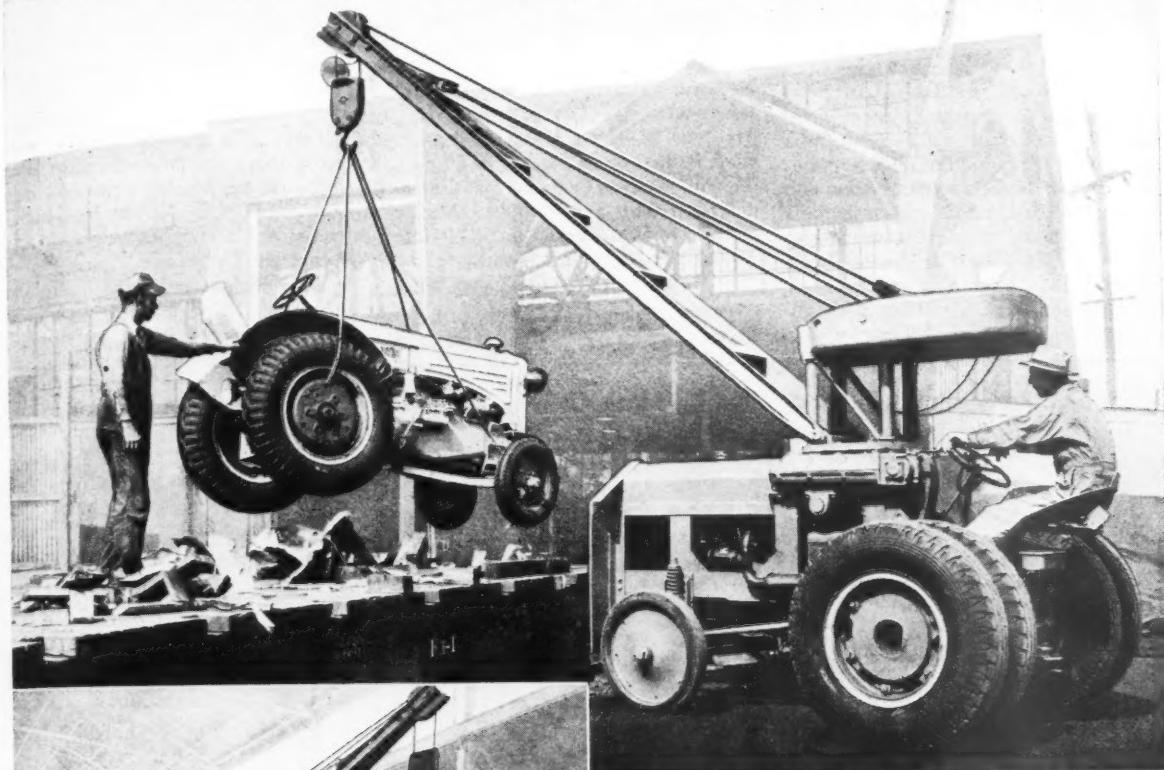
In building their new homes, stocking their new enterprises, and operating their farms, the newcomers not only will buy land and goods, but will need vast quantities of those things which can only be

(Cont'd on Page 44)



* Glass fabric inner lining saves 71 lbs. in reconverted DC-3 transports of Western Air Lines on Los Angeles-San Francisco run. Lighter chairs save 157½ lbs. additional.

SAVE TIME... MONEY... MANPOWER



ABOVE—Stockpiling 1½-inch steel plates, unloaded from car in plant yard and carried to welding floor by the INDUSTRIAL in one fast operation.

BETWEEN—Scrap handling costs went down in this yard when their magnet-equipped INDUSTRIAL went to work.



—with the new **INDUSTRIAL** *Full Revolving* **HANDI-CRANE**

Wherever loads must be handled, you can save time, money and manpower with Industrial's new Model D Handi-Crane on the Case Model D industrial tractor. This Western-built crane offers outstanding performance features that speed up work, cut maintenance cost and assure more hours ON THE JOB.

- **Full Revolving** boom assembly rides on steel balls in a flame-hardened race in the all-steel turntable castings.
- **Stronger Frame** transmits all crane load directly to the tractor axles . . . positively no strain is placed on tractor engine or transmission cases.
- **High Mobility** . . . Turning radius is but 15 feet; travels at speeds up to 15.6 m.p.h.
- **Easy Operation** . . . Two convenient levers (hoist and swing) control all crane operations.
- **Big Capacity** . . . Load rating is 7000 pounds on 6-foot radius with boom to the front.

Phone, write or wire for complete data, delivery information and prices

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LOS ANGELES

4441 Santa Fe Avenue

Telephone Kimball 7141

KRUCKMAN (Cont'd from Pg. 42)

made east of the Mississippi River at this time. He foresees they will absorb the products of utility plants still in the making, and give a tremendous momentum to the increase of the facilities for transportation, by rail, by air, and by highway.

And before the usufruct of the projects planned by the Reclamation Bureau can be produced for the support of the new population, it will have to depend upon the farms of the East, which, obviously, will benefit tremendously by the new markets in the West which must be supplied with food and fiber. And on the Pacific, in Latin America, Asia, Australia, and Africa, with at least three-fourths of the

world's population, there is the potential market for much of the industrial expansion of the West.

To understand Schuette's plan it is necessary to have some knowledge of the various benefits the government has provided for the veteran. When he leaves the service he receives \$300 cash mustering-out pay after 60 days overseas service; \$200 when he has served more than 60 days in the United States or Alaska; and \$100 if he has served less than 60 days. Most veterans have War Bonds, and their immediate relatives have War Bonds.

Those who have served 90 days or more, enlisted personnel or officers, men or women, may borrow, without collateral, up

to \$4,000 on a showing of ability and experience and a reasonable likelihood of making a success of the undertaking they have in mind.

Half the money borrowed is contributed by the government, and the other half is to be supplied by a bank, finance company, private lender, or government finance agency. The loan not directly provided from the government treasury is to be made on the veteran's character and the guarantee and lien on any land, buildings, equipment, or supplies the veteran acquires to operate the business.

Interest, low, ordinarily is projected at 4 per cent, with up to 20 years to repay. Government pays up to half the interest charge the first year. In addition to the borrowing power, it is generally assumed in government, the veteran will have saved approximately \$500, and his family will have at least another \$500. If the veteran wishes to purchase a going business the loan can be applied on the purchase price, and the government guarantees the payment of the first year's interest. If the veteran wishes to buy a home or a farm, the government guarantees 20 per cent of the purchase price and makes the funds available as the down payment.

The G.I. law also provides the veteran may seek additional training or education in any school or college or university, from 1 to 3 years, with tuition paid up to \$500 a year, and the cost of books, supplies, equipment, and other necessary expenses. If he is unmarried he is provided with subsistence allowance of \$50 a month while he is a student; if he has dependents, he is given an allowance of \$75 per month.

It is emphasized there is provision for part-time training or attendance at institutions of learning. The veteran may choose any school he wishes, sectarian or otherwise. The Western states notably have fine schools, ranging from the California Institute of Technology, through the various colleges and universities and technical schools, to the agricultural colleges and the famous schools of mining, such as those in Arizona and Colorado.

Obviously it would be of immense value to the West to add this student population to its numbers. Bear in mind, also, the veteran is permitted to draw unemployment allowances of \$20 per week for at least 52 weeks; and those who are self-employed—in other words, those who attempt to set themselves up in an independent business, trade, profession, or vocation of any kind, who do not make a minimum of \$100 a month while establishing themselves may secure an allowance which will bring their income up to \$100 per month.

The laws benefiting veterans also provide vocational rehabilitation at the expense of the government with a guaranteed income of \$80 per month if he is single, \$90 per month if married, and \$5 additional for each dependent child, and \$10

(Cont'd on Page 46)

WESTERN INDUSTRY—August, 1944

PACIFIC'S MEN

**SPECIALISTS WHO ARE
MEETING TODAY'S
PRODUCTION CHALLENGE**

...and who will lead in producing vital mechanical parts for a better peacetime world.

15 Years of Progress and Service

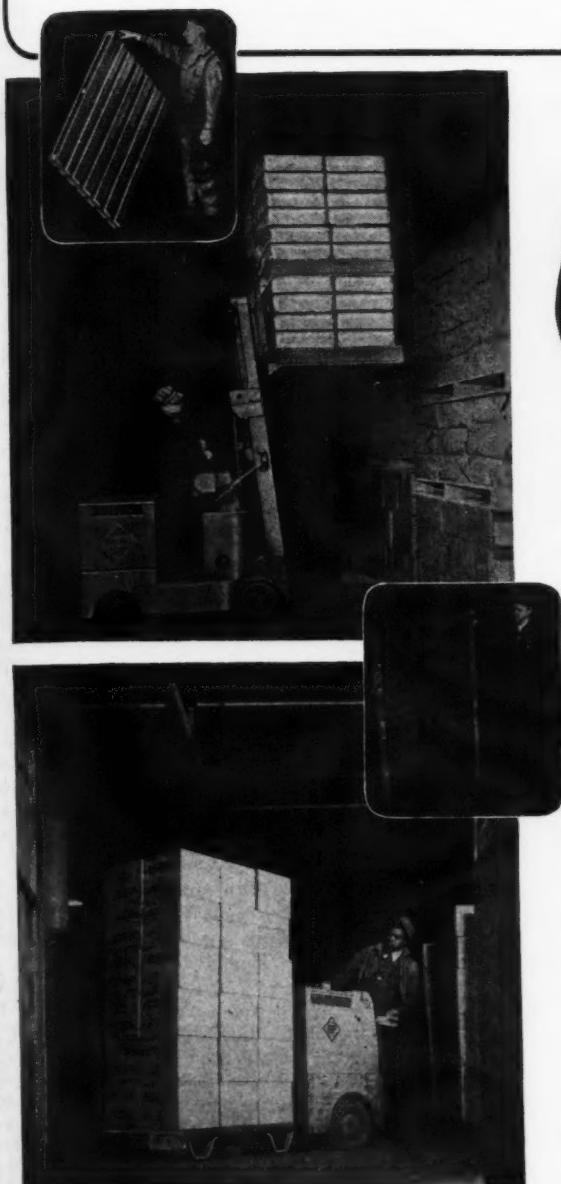
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ELWELL-PARKER

POWER INDUSTRIAL TRUCKS

KRUCKMAN (Cont'd from Pg. 44)

for each dependent parent. There also is provision for the establishment of a large number of hospitals, and similar welfare units to take care of those who are to be treated for rehabilitation.

Schuette regards the area west of the Rockies as ideal for the location of most of these projected establishments. There are so many laws for the benefit of the veteran of this war, with so many applications to the facilities that may be supplied by the West, that it will be wisdom for the commercial and welfare organizations of the West to assemble and collate and digest the laws, in order to plan how the resources of the West may best be offered to the veteran.

It is generally assumed veterans may turn normally to these undertakings when

they plan to embark in business: appliances and radios; filling stations; barber and beauty shops; auto repair shops; farm implement agencies; shoe repair shops; some automobile agencies; groceries; restaurants; furniture and hardware stores; some laundries; dry goods stores; and general stores. Many will wish to become farmers, or orchardists; others want to be florists; some will wish to engage in newspaper publishing in smaller communities.

The greatest opportunities, according to government, are in groceries, which have declined from 346,000 to 238,300; in appliance and radio stores, because over a third have closed, stocks are low, and consumer demand is constantly increasing; in addition many young men have had special training in the armed services in radio and electrical work.

Approximately a third of all filling stations have closed; a tremendous number of barber shops and beauty shops have closed because many barbers and hair dressers went into the armed services. General stores have declined over one-third in number, and appear to be very attractive to veterans; there also have been substantial reductions in the number of dry goods stores, auto repair shops, restaurants, farm implement stores, furniture stores, hardware stores, and shoe repair shops.

Under the supervision of the War Department, the Department of Commerce has prepared a number of textbooks, written with the cooperation of the foremost authorities in the crafts or industries, to instruct veterans in the business they may elect to undertake. And it should also be remembered Congress will give the veterans preference in buying surplus war materials, and that much money will be made in these transactions.

It is Schuette's idea that each community in the West interested in selling the attractions of the West to the veterans should set up its own machinery to take care of the financing of the government guaranteed loans. The local clearing committee or organization might work with banks and with similar groups.

Schuette suggests that each community should survey its own needs, and out of this survey should come the hints that will enable the veteran to choose what he may wish to do, and where he may wish to go to do it. The outline should offer not only opportunities for business undertaking, but should describe the character of the community, the educational facilities the veteran might desire to utilize for himself or for members of his family. In other words, the prospectus should apply to all the various provisions made by the government for the establishment or rehabilitation of the veteran.

He feels the community effort should be kept free of government affiliations. There are already almost innumerable government channels for veterans. The effort suggested by Schuette should stem from civic and commercial impulses. It should be utterly sincere. It is his thought that somewhere in the East the West collective should have a clearing center where those interested may go for counsel and information. And he suggests the "Come West, Veteran" appeal should be set forth in simple and convincing words, properly illustrated and printed, and sent to the veteran even while he is in the front lines overseas, as it were. Schuette has been over there during this war, and he feels certain the soldiers will welcome the attention, the word from home.

Finally, Schuette, and the representatives of the Western commercial organizations who talked it over here, feel the time to get started is now.

Save time with WALWORTH Iron Body Saddle Gate Valves



This new style Iron Body Saddle Wedge Gate Valve is for general use on many services, such as steam, gas, gasoline, water, oil, and process lines. The ease with which the U-bolt body to bonnet connection permits the valve to be taken apart for inspection makes this type of valve ideal for service on lines containing sludge and fluids of high viscosity.

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STEEL

WESTERNERS AT WORK

Arizona

H. L. Gardner, now superintendent of the Gila mill of International Mineral and Chemical Co.; E. C. Anderson transferred to company's phosphate plant in Montana and George T. Harley replaces H. S. Martin who resigns as general manager because of ill health at the Carlsbad potash plant. . . . Charles H. (Chuck) Dunning succeeds J. S. Coupal as director of Arizona Department of Mineral Resources.

California

OPA announces appointment of Milo G. Spaich, general manager of American Forge Company, 735 Ashby Street, Berkeley, to the Open Die Forgings Industry Advisory Committee. . . . L. B. Cameron, recently resigned from Interstate Aircraft & Engineering Corporation, will have his shoes filled by two executive appointees, L. A. Kavanagh as secretary and W. C. Barnett as treasurer. . . . Charles W. Smith, formerly deputy director under Buell F. Mabin, now regional director of food distribution for War Food Administration,

with offices in San Francisco. . . . Henry A. Marks, Santa Barbara, recently retired after 30 years with Standard Oil, appointed special agent on National Safety Committee. . . . Fay W. Hunter succeeds William K. Hopkins as Regional Director of Region 9 of WMC, Hopkins returning to former position with Columbia Pictures. . . . William E. Waste, general manager and director of Marinship Corporation, recently elected vice-president. . . . Randall M. Dorton, coordinator of all Federal agencies in Bay area for past year, now deputy director of finance for State of California. . . . Mac Powell moves up to vice presidency in charge of technical research for Harvill Corporation, Los Angeles. . . . Guy R. Kinsley becomes acting regional OPA rationing executive, takes place of John M. Olney who resigns to re-enter private business. . . . Nelson H. Budd, 13 years editor of Canning Age and more recently with the National Canners Association, becomes editor of Good Packaging, San Francisco.

Edward M. Thomas, director of refractories section of OPA in Washington for past two years, joins refractories division of Permanente Metals Corporation. . . . Sam E. Fletcher, promoted by Continental Can Co., now headquartered in Sacramento, Calif., where he will have charge of sales for 11 Western states. . . . Dr. Emily H. Huntington, on leave from the

University of California, is acting director of the Wage Stabilization Division of regional WLB, formerly assistant director. . . . Dave M. Schindler, appointed executive vice president of Walter N. Boyen Co., will have charge of sales for the Boyens organization throughout the Pacific Coast. . . . Virgil E. Reames, retired Army Major, succeeds John D. Lambert as controller and office manager for San Francisco Chamber of Commerce. . . . Shelley B. William as acting district manager of Fresno District office of Highway Transport Dept. replaces John R. Calvert who returns to private business as travel consultant for Fruehauf Trailer Company in Fresno. . . . E. H. "Ernie" Adams appointed assistant district manager for Pittsburgh Equitable Meter Co. will operate out of Pacific Coast District office in Los Angeles; R. L. Ford, formerly located in company's Seattle office, moves to Los Angeles while Frank Tangney, formerly with National Meter Co., takes charge of Seattle office; Gilbert Bowman placed in charge of San Francisco office. . . . William P. Brotherton, president of the San Diego Junior Chamber of Commerce, joins staff of Ryan Aeronautical Company, public relations department. . . . George Irvin succeeds Nelson F. Metcalf as chief industrial engineer of Consolidated Vultee Field Division; Metcalf remains at the Allentown Division. . . . Pacific Telephone and

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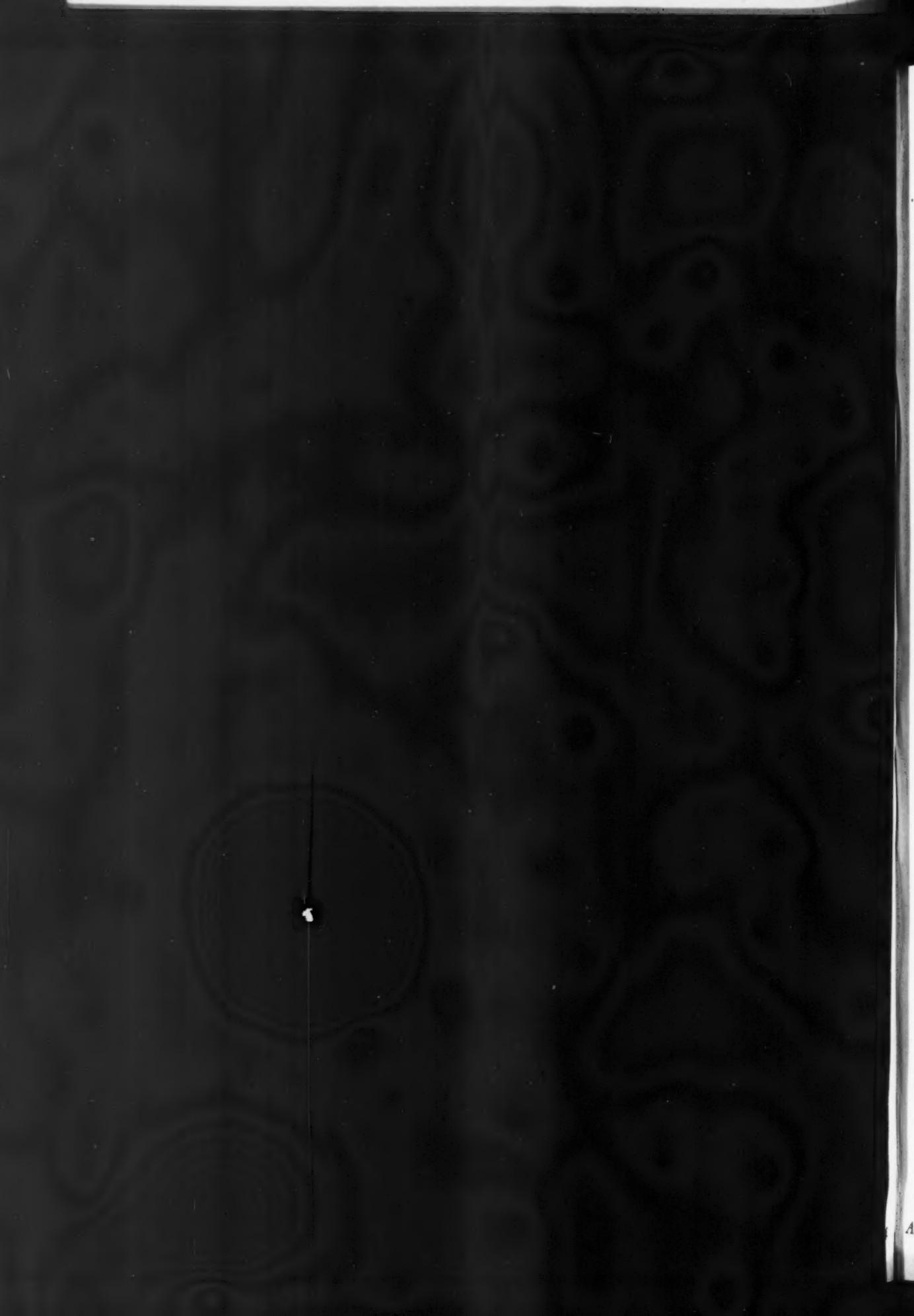
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EXECUTIVE OFFICES AND PLANT - SAN LEANDRO, CALIFORNIA, U.S.A.



WESTERNERS (Cont'd from Pg. 48)

Telegraph Company announces a few company changes; Frank A. Dresslar till recently vice president and general manager in Portland is in San Francisco as vice president with company-wide responsibilities; G. K. Smith, general traffic manager in Portland since '39 now development engineer at San Francisco headquarters; Herbert Deal of San Francisco fills Smith's shoes. . . . Thomas Coakley, member of S. F. Board of State Harbor Commissioners, assumes office as vice president of California Association of Port Authorities. . . . A. H. Abel, port manager of Oakland, succeeded as president by A. M. Rosenfeld, vice-president of L. A. Board of Harbor Commissioners.

W. A. Newhoff appointed assistant to president of Union Oil Co. of California; also two new vice presidents, Basil Hopper and Samuel Grinsfelder. . . . B. T. Rocca, president and general manager Pacific Vegetable Oil Corporation, San Francisco, becomes member of OPA Linseed Meal Industry Advisory Committee. . . . J. A. Stapleton of Stapleton Lumber and Piling Co., San Francisco, named member of the Douglas Fir Pole and Piling Advisory Committee. . . . M. L. Jennings promoted from superintendent of Southern Pacific Company at Portland to superintendent at Sacramento. . . . Henry Mulryan elected

president of Globe Los Angeles Mining Co. . . . King Wilkin, new general sales manager of Zellerbach Paper Co., San Francisco. . . . S. W. Scott, district commercial manager for Graybar Electric Co., in Los Angeles, succeeding W. E. Guy. . . . W. W. Hodgson, Jr., named sales manager San Francisco district and R. W. Franz appointed sales manager, Los Angeles district, Continental Can Co., New York, in charge of both general line and packers' can sales. . . . Thomas F. Hamilton, former director and vice president of United Aircraft, elected president of Hamilton Aero, Ltd., Los Angeles. . . . Avlin Zerneman promoted to vice president and general sales manager of the Axelson Manufacturing Company, Los Angeles. . . . Edward Bartsch, former executive vice president of Rayonier, Inc., San Francisco, succeeds E. M. Mills as president. . . .

Colorado

Tracy J. Wolfe, sales manager at Denver for Standard Oil of Indiana, promoted to assistant manager of Rocky Mountain division; E. A. Yoos succeeds Wolfe as Denver sales manager.

Utah

Ames K. Bagley, executive secretary of Salt Lake City's Junior Chamber of Commerce, becomes assistant manager of the Utah Manufacturers' Association. . . . E. M.

Barber, vice president of Columbia Steel defense plant division, in charge of Geneva steel plant since 1942, leaves Salt Lake to assume new duties with U. S. Steel Corporation in Pittsburgh, Pa.; M. B. Sheik project manager, will carry on at Geneva

Oregon

F. D. Tellwright returns from Washington, D.C., to resume former position as vice president and general manager in Portland for Pacific Telephone and Telegraph Company. . . . Clark C. Van Fleet, ex-district OPA rationing official, named manager of the Willamette Valley Wool Chemical plant to be built near Springfield. . . . L. P. Hopkins, new superintendent of Southern Pacific at Portland. . . . Nelson Hazeltine, former editor of Western Building, named director of information for the Bonneville Power Administration.

Washington

Arthur Anderson of Walla Walla named general manager to succeed Howard M. Thomas who retired as president and general manager of Northwest Cities Gas Co. . . . George Heikes of Tacoma, formerly with Olin Corporation, returns to government service as director of aluminum and magnesium division of WPB in Washington, D.C. . . . F. H. Gartung succeeds Mr. Heikes at Olin.

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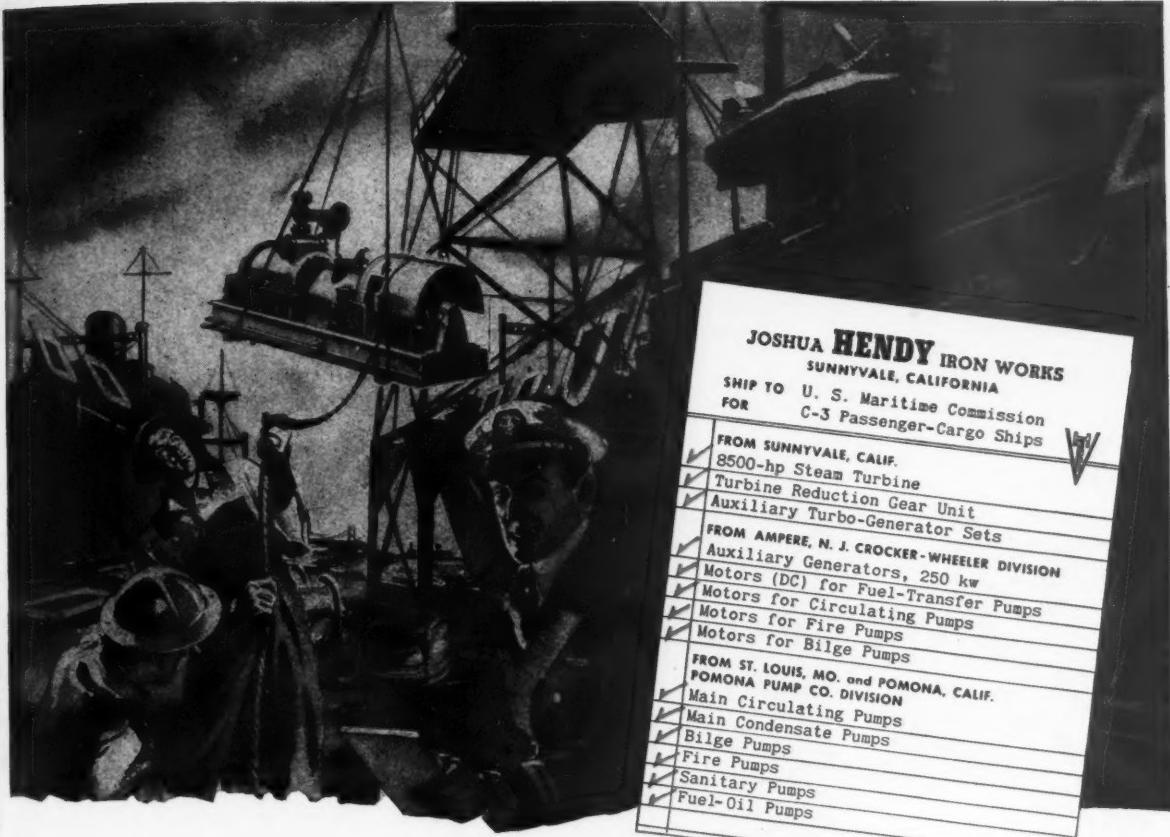
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FROM AMPERE, N. J. CROCKER-WHEELER DIVISION
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FAMILY REUNION

The seagoing members of the Hendy Family are holding important reunions these days. They're coming together from factory points 3,000 miles apart to team up for service on 12,500-ton C-3 passenger-cargo ships. Crocker-Wheeler motors and Pomona pumps operate fuel, sanitary, fire-fighting, and condenser systems... Hendy turbo-generators provide auxiliary power... and Hendy steam turbines and gears serve as main propulsion units.

In addition to marine duties, products of the Hendy Family have long been settled in other industries. Their individual achievement records show many valuable

contributions to the advancement of both industry and community life.

Looking back...you will find Crocker-Wheeler motors and generators first in the electrification of many industries...Pomona Pump Co. credited with pioneering the deep-well turbine pump—so vital in the supply of water for all industrial purposes...Joshua Hendy Iron Works, first known for the development of mining machinery and dredge equipment—now creating an enviable record in the large-scale production and delivery of steam-turbine power and reduction gear units.

Looking ahead...you can depend on the skill and knowledge of engineering that Hendy has gathered through 88 years of operation. Your nearest Hendy office will gladly co-operate with you in solving your mechanical, electrical, or hydraulic power problems.

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Training Successful In Oregon Canneries

IN VIEW of the publicity being given at the present time to the critical labor shortage in the canning industry, a recital of how Libby, McNeill & Libby met the problem last year by being forehanded is of considerable interest. It was a Training-Within-Industry program which began at the Portland plant.

Recruiting workers for Oregon food processing in 1943 was a man-sized job.

Store-window displays, loud speakers, house-to-house canvasses and radio speeches by prominent citizens—every ingenious method known to United States Employment Service and War Manpower Commission workers was employed to lure housewives and students, young and old into jobs preparing food for the front.

The problem of training inexperienced workers in the shortest possible time was

one of tremendous importance. In former years many cannery workers, discouraged by their own ineptitude or lack of understanding of machinery or plant policies, dropped out during their first few days of work. In 1943 such a loss in man-hours and woman-hours would have entailed a heavy loss of vitally needed canned fruits and vegetables.

Libby's Training-Within-Industry program cut down their cost per new employee approximately 25 per cent, according to J. J. Bartosh, plant manager. The program was instituted on April 1, 1943, with the intention of giving all of the supervisory staff job instruction training. Eighty-four enrolled in these courses, 34 in job-methods training and 50 in job relations. The sessions in these amounted to ten hours each of intensive training.

Two in-plant trainers were also appointed, one for further in-plant training in job methods, the other in job relations. These two were also equipped to administer "follow-through" training. As each fruit or vegetable ripened for processing, training was administered to foremen and sub-foremen who in turn gave further training to the workers under them in specific methods of handling and in different jobs necessitated by the varying nature of the products.

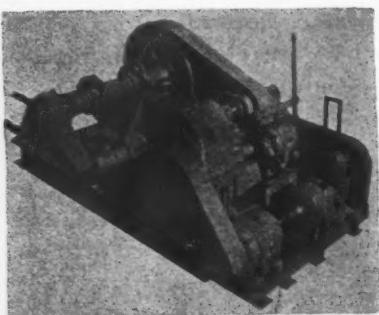
In connection with this program, Libby, McNeill & Libby have inaugurated breakdowns of each new job and keep complete records of all workers, for aid in analyzing weaknesses and strongpoints in the system and in planning further training programs.

During the year in which Training Within-Industry has been in use in the Portland cannery of this company and during the period of its installation in the California plants, a 25 per cent decrease in turnover has been effected. The timid new worker is shown and told exactly how to perform his job. He is given sympathetic coaching all during the "breaking in" period. When new problems arise he has able assistance in working them out and always feels free to take his perplexities to "someone who knows the answers." Thus is eliminated the enormous turnover which formerly was the result of hiring green help.

Other Oregon canneries which have instituted TWI include Ray E. Maling, Hillsboro and Woodburn, California Packing Corporation, and Rogers Brothers, Milton-Freewater, Smith Cannery Co. at Pendleton, and various Salem and Medford canneries. At Medford TWI was of assistance in the handling of an immense tonnage of pears. All of these canneries report marked success in the carrying out of this program.



And to the Axis the Northrop Black Widow night fighter is not only dangerous but sure death.



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Lumber From Canada

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Cure Offered For Hand-to-Mouth Buying

One of the biggest inducements to get jobbers and wholesalers away from hand-to-mouth buying would be for the railroads to furnish free storage space for merchandise over a minimum carload until it can be sold, according to J. C. Milne, traffic manager of the Skinner Manufacturing Company of Omaha, speaking at the Central Western Shippers Advisory Board meeting in Salt Lake City in June.

Air cargo competition will compel this if nothing else does, Mr. Milne asserted, and the railroads can afford to do it. Discussing inducements to retain heavier loading of cars after the war, he said:

"Some inducement to shippers to heavily load cars are: Substantial reduction in rates, both car load and less car load; liberalizing rules pertaining to car use, back hauls, out of line hauls, routing, and bracing of loads after portion removed; policing of shipment by railroad agent to prevent first consignee from taking choice part of lading, such as removing good merchandise from other part of car and replacing it with bad order goods in his portion; liberalizing switching rules. In fact remove all switch charges except intra-terminal movements."

"Railroads to furnish free storage space of merchandise over minimum car until it can be sold—air cargo competition will compel this if nothing else does. Something has to be done to induce wholesalers and jobbers and the like to get away from hand to mouth buying. As I see it, as transportation time decreases more and more concessions will have to be offered by the rail carriers to keep buyers buying in volume and large quantities."

"The railroads can afford to do this because—terminals cost of one double-loaded car will be less than half of 2 minimum cars—no more train crew or other personnel required to handle one double-load than one minimum load—clerical work considerably reduced by doubling-loading as compared to two minimum loads. It would not be necessary to buy or keep so many cars in reserve. This would also anticipate train length laws or other such restrictions."

Douglas Claims Lead

Douglas claims the lead in aircraft manufacturing for the country, or 17.2 per cent of the national output on a basis of pounds of airframes, for the first five months of 1944. May production, plane bodies exclusive of engines, propellers, armament and government-furnished equipment, was 16,380,000 lbs.

Joint Research

Northrop Aircraft, Inc., and Joshua Hendy Iron Works have jointly organized a research subsidiary known as the Northrop-Hendy Company.

What to Look for

in

INSULATING TAPES



Check these facts when selecting insulating tape:

A. The base cloth must: (1) have ample mechanical strength; (2) be chemically inert; (3) contain minimum sizing to permit thorough penetration by the insulating varnish and prevent weakening of the fiber in service.

B. The varnish must: (1) be neutral in relation to the cloth; (2) impart maximum dielectric strength, flexibility and resistance to heat, oil, water or other damaging agents against which the particular tape is to give protection.

C. A ready source of supply for all types of insulating tapes must be available. Your local G-E distributor handles a complete line of tapes, as well as all other insulating materials, and can furnish detailed data and catalog on request. Or send for catalog to Section M844-100, Resin and Insulation Materials Division, General Electric Company, Schenectady, N. Y.

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GENERAL ELECTRIC

Hear the General Electric radio programs: "The G-E All Girl Orchestra" Sunday 10 P.M. EWT, NBC. "The World Today" news every weekday 6:45 P.M. EWT, CBS.

March of Time in the Columbia Empire . . .

ONE OF the home front tragedies of this war is the amount of "double-talk" that has to go on regarding jobs and opportunities. It's nobody's fault. It's just "one of those things."

The Portland metropolitan area had a total labor force of approximately 170,000 in 1940. There were 22,000 seeking work and 8,000 on relief projects. At the present time this labor force has grown to 290,000. It is a certainty that there will have to be

some contraction when shipyards begin closing down. This will be one of the biggest problems that ever faced the city yet unfortunately it can hardly be talked about now. If it is discussed it must be in far-flung general terms with a ringing note of optimism.

The trouble is, that fear of postwar unemployment could start a stampede away from the shipyards that would seriously affect the present shipbuilding program.

The Lasting Perfection of a Perfect Product Boils Down to Just One Thing



PROPER CLOSURES

When you have reached technical perfection in your production process and scientific perfection in the quality of your product, no matter what it may be, there still remains one vitally important element to be carefully considered. It is the proper closure for your package, which must seal in the qualities and properties you have formulated. Positive and lasting protection, therefore, is essential to your product and its reputation. Only through the proper application of the proper closure can this be assured. To be absolutely certain your closure meets these exacting requirements, rely on I. F. Schnier Company's recommendations. For a prompt solution to your closure problem, call or write the I. F. Schnier Company office located in your vicinity.



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- ★ Laboratory Stoppers
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- ★ "Protex" Excelsior
- ★ Bottle Wraps
- ★ Crimping & Corking Machinery

MOST COMPLETE LINE OF CLOSURES IN THE WEST

Labor turnover is bad enough as it is. Circumstances have placed this area in a position where it cannot afford to face facts realistically and openly.

"There's too much thinking going on already," exclaimed a United States Employment Office official.

War industries can't afford to be pessimistic about postwar prospects, for fear of scaring away present workers. Local business and civic leaders don't want to be too optimistic for fear of encouraging more people to stay here than can be absorbed. As a result everyone puts on blinders and tries not to see the problem at all except in private discussions.

Local members of the Committee for Economic Development, headed by T. E. Roach of the Northwestern Electric Company, have just completed a survey of post-war employment possibilities among local industries and businesses. The C.E.D. surveyors interviewed the heads of 824 firms in this area in 13 general classifications. All construction and home-building industries were disregarded.

These 824 firms employed a total of 49,260 persons in 1940. Of these 38,101 were men and 11,159 were women. At present they employ 146,452 people of which 103,218 are men and 43,234 are women. These firms estimate that after the war they will employ a total of 71,134 persons of which 53,687 will be men and 17,447 will be women. This is an increase of 44.4 per cent over the prewar figure but a drop of 51 per cent from the present employment figure.

Such a survey would look quite optimistic nevertheless. There are a few bugs in it, however. In order not to reveal plans of individual concerns, the survey was not publicly broken down into different classifications. Included, however, were the two Kaiser yards in Portland, Oregon Shipbuilding Corporation and Kaiser Company, Swan Island. These two yards now employ a total of 51,000 persons. After the war the survey states that 12,000 are expected to be employed in shipbuilding. This is highly optimistic.

If, however, we remove these shipbuilding figures from the survey entirely, we have a present force of 95,452 and a post-war force of 59,134. This is an increase of only 20 per cent over the prewar figure and a drop of 38 per cent from the present figure.

It is evident, therefore, that the old-line established businesses of Portland will not absorb any displaced shipyard workers. They will, in fact, have to make substantial cuts in their present forces. In the end they will be about 20 per cent better off than they were four years ago, if this is any consolation.

Population — There are now 685,000 people living in the Portland-Vancouver area (composed of Clackamas, Multnomah and Washington counties in Oregon, and

Clark county, Washington) according to a sample census taken in June. This is 31.3 per cent more than the area's population on April 1, 1940. The census includes all members of the armed forces not living on naval or military reservations and about 9000 residents who were away at the time of the enumeration.

The big question is how this war-time growth affects the long-run permanent population growth of the area. Under normal growth trends (since 1910) the area might have been expected to have a population of 570,000 by 1950. Either the wartime population must shrink substantially or the whole curve will take a quick step upwards. It will probably be a combination of both. During World War I, however, the trend failed to vary. The growth from 1910 to 1920 was approximately the same as from 1920 to 1930.

Lumber—Despite the lumber industry's remarkable production record with its curtailed labor force, the recent strike threw it even farther behind orders than it was before. As a result blanket controls over all use of lumber have been ordered by the WPB to take effect August 1. The war is an insatiable lumber-user. Rebuilding Cherbourg's port alone is said to be taking from 500 to 1000 carloads of lumber.

Underlying all lumber activity in the Northwest is a definite trend toward greater utilization of waste products and expansion of uses for existing products. Elimination of waste occupies a high spot in every company's postwar plans.

Electric Power—Clark County, Washington will soon institute condemnation proceedings to acquire the power properties of the Northwestern Electric, Pacific Power & Light and Portland General Electric companies in that county, the Clark County Public Utility District has announced. Negotiations for the properties have been going on for five years. The Clark PUD No. 1 now serves the great majority of the emergency housing area adjacent to Vancouver.

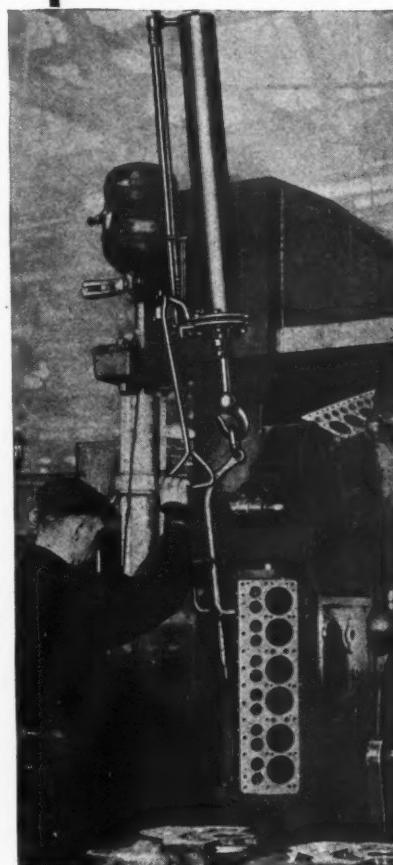
The Pacific Coast has made by far the greatest increase in use of electrical energy since 1943, according to the Edison Electric Institute. For the week ending June 17 the Pacific Coast was up 16.5 per cent compared to the national average of 4.6 against the same week in 1943.

The SEC has disapproved four reorganization plans for the Portland Electric Power Company as "neither fair nor equitable."

Gold Goes Slowly

A new attempt to develop the famous Comstock Mine at Virginia City, Nevada, has gotten under way, but is considerably hindered by lack of available manpower. This seems to be the story with all the projects set in motion by lifting of the WPB ban on gold mining.

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Industry in Review... Tehachepi to Tijuana

BAFFLING DAYS! During the days since D-Day, everyone has become more and more puzzled about the war. Prior to D-Day, there was a feeling that there was still a great deal of fighting to be done, and that those who talked of victory in 1944 over Germany were over-optimistic.

With the Allies moving in on every front, there are many guesses that the war will end by September 1. And everyone seems to agree that it will definitely end

by January 1, 1945. These are not our opinions but those that you gather in your rounds. Some, of course, prefer to be on the cautious side and think Hitler will have something up his sleeve that will prolong the war until a year from now.

This viewpoint on ending of the war brings things up fairly close to the major issue that people wonder about. When the war with Germany ends, will the West "carry the load" in the war with Japan while the East converts to peacetime production?

Fear that this would happen caused a great deal of concern early in the war when it was assumed that the war with Japan would continue on many years after the war with Germany. Any western plant that wanted to enter a new consumer market would be very late entering the field and would find that the good dealers were handling other lines, and that the cream had been skimmed. He would enter the field when the going was "tough."

The difficulty would be so great that it would prevent many firms from going ahead with their plans, because they would hope for the easy business of the early years to help them in paying off their promotion costs and starting costs.

Bullish Feeling—Success in the war with Japan has created a "bullish" feeling despite the bad news from some Chinese fronts. Nobody has any facts to make them feel that the war with Japan will end so very soon, but the very calm way that we move forward toward Tokyo makes them feel that it will end sooner than would be expected.

Inasmuch as we aren't losing as much in the way of men or supplies in our war with Germany as was expected, there seems to be a feeling that the West's share in "carrying the load" in the war with Japan would not necessarily be of such magnitude that it would require the West to continue its "all-out" type of war production.

On the other hand, there isn't any definite way of stating that this is so. And there aren't very many business men who want to turn away from the job of winning the war if there is a chance that they are still needed. But it is not a comforting thought that some competitor in another area may suddenly announce its permission to resume civilian production the following week.

"Our War" and "Your War"—Pretty much on the basis that "the East fought the war with Germany and won it—now you win your war with Japan." The West figures, and rightly, that it's all one country and one war and that it shouldn't be outsmarted by a neat phrase about the Japanese war being "your war."

The problem is not one that can not be taken up by business itself. It would appear in a light that is not representative of the feeling of business men in this area. And yet it is a problem on which there will have to be some action, because the matter of the West "carrying the load" in the war with Japan can be decided without the West ever saying anything except: "Well—now—wait a minute . . .

"Once the East converts, then the West has the load. It couldn't give it up if it wanted to, because it is supplying the war. If the whole job is done in the West, the manpower problem will continue to be a problem and the material problem will continue to be a problem, so that it will not be easy for business to do very much."

Many Angles—It's a many-sided prob-

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lem in that many plants will have no objection to continuing war production, because the items that they could make will not be among those permitted early in the reconversion program. Others may be willing to maintain a high rate of war production if they are allowed to "keep their hand in" on civilian production.

This entire area is interested in this problem, because many feel that it will be with us in a matter of weeks. If we think in terms of another year to do the same thing to Japan, what will be our picture during that year? Will our share of the war program be of such magnitude that we will be engaged in "all-out" effort for the year? Will our share dwindle so much that what war production remains will be eagerly sought after to keep plants busy until the reconversion can be more complete? Everyone seems to want to know the answers to those questions. But nobody does.

Other factors such as idle plants and idle workers in various eastern centers, however, have made this a matter of interest to Congress and Army and Navy officials may be overruled. Thus, the West must "go along" with such solution as may be devised by those who cry loudest, or it must formulate some viewpoint and get somebody to present it.

Many business men in this area would be as happy to see reconversion "slowed down" to a program closer to the Army and Navy viewpoint, because they feel that it would enable them to go on doing the kind of job on the war that they want to do, and that they can do it without suffering a penalty.

Hearings On Small Business

Testimony on the problems of small business in converting to peace-time production, and on the possibility of increased development in the intermountain area, using surplus labor now engaged in war production on the West Coast, will be heard by the Senate Small Business Committee in July and August. Senator Murray of Montana is chairman.

The schedule includes the following conferences: At Kalispell, Mont., July 23-25; Seattle, Wash., July 26-27; Portland, Ore., July 28; San Francisco, July 31-August 1; Los Angeles, August 2-3; and San Diego, August 4.

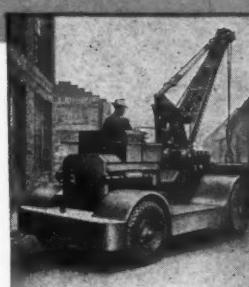
Guayule Operations

Guayule rubber mills at Salinas and Bakersfield, California, are expected to produce about 600 tons this coming season. The former is being renovated, while the latter is a new \$350,000 establishment to be completed by midwinter. The two mills will handle about 30 tons of shrubs a day and turn out two or three tons of rubber each.

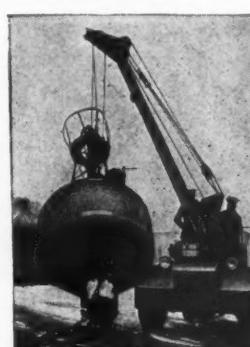
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Another Viewpoint on The Colorado Treaty

Editor, WESTERN INDUSTRY: Statements by your Washington editor, Arnold Kruckman, in the May issue of *Western Industry* concerning the pending treaty with Mexico relating to the waters of Colorado and Tijuana rivers and of Rio Grande do not square with the actual treaty provisions nor the facts.

The points said to be raised against the treaty by Congressman Hinshaw are with-

out foundation. The treaty does provide that the United States will build and operate Davis dam on Colorado River, but two very important facts, having nothing to do with the treaty, are not mentioned. In the first place, construction of Davis dam has been started and it will be built whether the treaty is ratified or not. Work on it was stopped by WPB, as a war measure, but it will be completed as soon as practicable.

Its primary purpose, treaty or no treaty, will be temporary storage of power releases from Lake Mead, to effect economy in supplying other uses, within the United States, on lower Colorado River, that are not coincident with such power releases. In the very distant future as much as 20 per cent of the useful storage at Davis dam may be utilized in economically supplying Mexico, but deregulation within the United States provides its essential justification and electricity generated there will repay its cost.

The agreement to build and operate Davis dam as a consideration for certain undertakings of a like sort by Mexico, which will also promote economy in use of Colorado River, is only the sort of reciprocal arrangement that is necessary and customary in treaties, as in other contracts. It is doubtful that the economies to be effected by Davis dam storage will be needed in either country for many years. Water is now pouring into the Gulf of California, unused by either country, at an annual average rate of 8,000,000 acre-feet, and will continue at a comparable rate for several decades.

A careful study of Article 20, and of other parts of the proposed treaty, will show that national sovereignty of each nation is to be carefully respected.

Perhaps the most serious mis-statement is contained in the words "agreement which gave Mexico a share in water belonging to California, Arizona and Nevada, as well as the assurance of certain works to be built in the United States, and certain supplies of power from plants belonging to the United States. In return for these benefits Mexico is to give Texas water on the Rio Grande." This is misleading.

Ingenious New Technical Methods

Presented in the hope that they will prove interesting and useful to you.

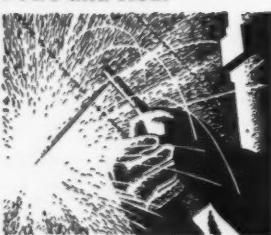
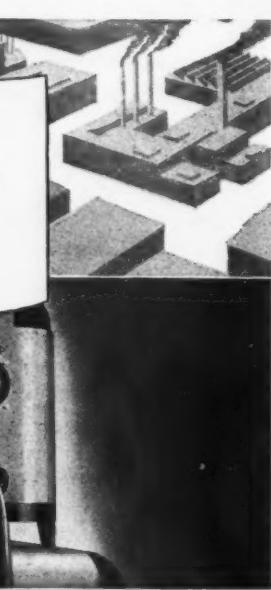
Revolutionary Hy-cycle Automatic Arc Provides Complete Control of Arc and Heat

At last, a development that automatically starts the arc before the welding electrode actually comes in contact with the work! Eliminating the "pecking" or "scratching" that so often creates tension and operator fatigue. Its many advantages contribute largely to saving time and labor because an operator can be trained in far less time than usual, and higher speeds can be obtained. This hy-cycle automatic arc unit, called "Missing Link," permits the operator to weld with any welding rod, bare steel or alloy. Rods that could not be used before can be burned with ease—such as bare mild steel, dust coated, reverse polarity, aluminum, bronze, stainless steel, etc., AC or DC.

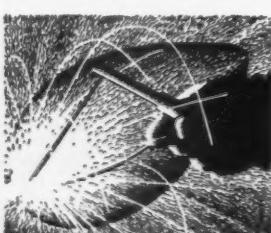
One of its most important advantages is welding light gauge. Light gauge requires low heat—making many jobs almost impossible for ordinary methods. Since the "Missing Link" starts automatically on as low as one ampere of heat, the welding of light gauge sheet can be done with surprising speed with no time out for "pecking" and "sticking."

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because the treaty does not provide for any supply of power for Mexico from the United States.

The Senate Foreign Relations Committee will examine in every detail all provisions of the proposed treaty, including allocation of water to each country and give both proponents and opponents of the treaty opportunity fully to present their views. It must be obvious that a treaty not in the best interest of the United States and of the actual rights of all its citizens would be a poor thing to offer for the advice and consent of the United States Senate.

It must be stated also that in matters like this there is recognized usage among civilized nations. Colorado River is an international stream to which, it is true, neither California nor Mexico furnishes any water, but upon which California, and even the two nations, have some rights. If these rights cannot be defined by voluntary agreement, as is attempted in this treaty, then under other existing treaties either nation is at liberty to request arbitration. In the interest of sound Inter-American policy the United States could hardly refuse arbitration, although its probable results are a matter of uncertainty and even of grave doubt.

The considerations upon which water of Rio Grande was allocated have no part in this discussion, but an allocation from Colorado River, no greater than present Mexican uses thereon, can hardly be tortured into such a concession as would warrant a recognition of future uses by the United States on Rio Grande.

Very truly yours,

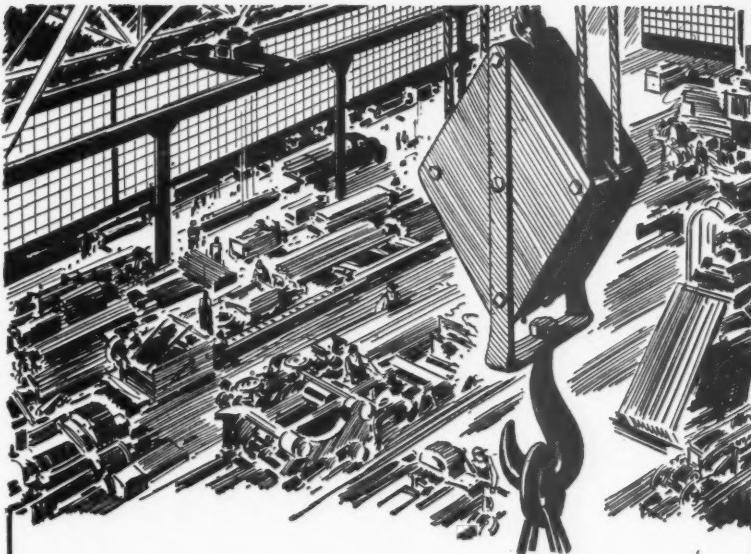
F. C. MERRIELL, Secretary
The Colorado River Water
Conservation District,
Grand Junction, Colorado

WPB Suspensions

Charged with violating WPB orders covering illegal sales and delivery of critical steel materials, Rosenberg Iron and Metal Company of San Francisco have been suspended by WPB from dealing in steel for a period of six months. WPB contended that the firm had placed orders for more than 1,200,000 lbs. of steel without CMP authorization in one instance and 352,000 lbs. in another, and had made false and misleading statements. Home Builders Corporation of Las Vegas, Nev., also were suspended from dealing in critical building materials for selling houses to persons outside of war activities and for violating ceiling prices.

Utah Steel Needs

Geneva Steel Company, when completed and operating at capacity, will require the following estimated raw materials per year, according to E. O. Howard, president of the Walker Bank & Trust Company of Salt Lake City: coal, 1,704,000 net tons; iron ore, 2,160,000 net tons; limestone and dolomite, 663,800 net tons.



BIRTH OF A BEACHHEAD

Because *you* carried the load long months ago, our first-line forces are now carrying the fight to the enemy. Your patriotic *extra* effort has placed that victory-making *extra* equipment on every bitter beachhead in this war. Building and producing side by side with millions of other Citizen Soldiers, you have made and moved ton after ton of war material—until the balance now turns toward Victory.

LET'S STAY ON THE JOB

We all know that the day of liberation and peace depends on staying on the job—not only men, but *machines*. Our direct concern is to help you keep your tools and equipment in running-shape. Along with increased production to power the attack, we are constantly developing improved lubricants to meet and lick wartime problems. Ask your Associated representative how the new, dual-purpose Cadel A. P. Heavy Duty Lubricant can help you do a better job. Call him without obligation, at any time, for up-to-the-minute advice on protective maintenance.



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FEPC Reports On Its Coast Work

Accomplishments of the Fair Employment Practice Committee since the West Coast Regional office was opened last September are enumerated by Harry L. Kingman, regional director, as follows:

"Several score plants, which never before hired minority workers, have done so at FEPC's request. Discriminatory orders to employment agencies have been markedly decreased. Representations by the FEPC have led to the fuller utilization and upgrading of many workers. The morale of thousands of negro and other

minority representatives has been heightened by the FEPC's work and war production has benefited accordingly.

"In one San Francisco Bay Area shipyard, higher paid and more skilled type of work has been opened up to negroes and in May 240 negroes had been advanced to the work which had previously been untenable. At the request of the FEPC a major oil company has just announced a clearcut non-discriminatory hiring policy and has notified the United States Employment Services in over 30 California cities that it does not intend to discriminate in any way whatsoever.

"A San Francisco union which had

never before accepted negro members acceded to the FEPC's request to admit six applicants. Another union which had been accepting only a small proportion of minority workers agreed to discontinue the limitation. Two shipyards which discharged several negro workers because of their race reinstated the men at the FEPC's request. Government agencies have been quick, as a rule, to adjust complaints brought to their attention.

"Companies such as the Portland Chain Company, which last fall notified the FEPC that colored workers could not be hired without losing skilled white workers, have successfully complied with the Non-Discrimination Order. The company notified us that it now had 32 negroes working and that several of them had already been upgraded. Expressions of appreciation come from workers of racial or creedal groups which have been aided by the FEPC's work.

"Admittedly, the attempt to win equality of employment opportunity for minorities is difficult. The manager of a small company phoned to say that he was losing most of the white women in one of his departments because he had hired three colored girls. FEPC, in cooperation with the War Manpower Commission representatives, were able to persuade the white employees to stay on the job. The FEPC depends upon educational and non-coercive techniques and occasionally fails to

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- No. 38200—Super-Tough Belt Cover Compound.
- No. 00296—Oil Hose Lining.
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win compliance thereby. But on the whole, employers and unions on the West Coast have accepted the policy of fair employment as essential to the war effort and are to be highly commended for their cooperation with the FEPC in the attempt to bring about a much greater utilization of minority workers."

Relieving Stresses In Redwood Lumber

Research sponsored by the California Redwood lumber industry for means of controlling seasoning defects has borne fruit in form of uniform schedules for relieving casehardening stresses in kiln-dried Redwood lumber. The investigation was inaugurated early this year through the setting up of a research group, the Redwood Seasoning Committee, composed of kiln operators at member lumber mills.

A progress report by the committee indicates that in the reconditioning of one-inch kiln dried redwood lumber, a temperature of 170 degrees Fahrenheit, with relatively high humidities, will entirely relieve casehardening stresses within 24 hours.

Because outer portions of the wood become drier than the core, kiln-dried lumber that is to be resawn is re-conditioned to equalize the moisture content throughout its thickness, in order that all surfaces of the resawn lumber be of uniform moisture content. In the course of the investigation, kiln schedules at the various mills were studied and test runs were made with varying degrees of heat and percentages of humidity.

An investigation is under way into the use of chemical solutions to facilitate the seasoning of thick stock. Another important phase in seasoning redwood lumber now under consideration by the committee is the proper segregation of stock at the green chain, according to its green moisture content. It is pointed out that such a procedure has a favorable effect on the time in the kiln.

Navy Nevada Project

The Navy has taken over 700,000 acres of land in Churchill County, Nevada, for use as a bombing and gunnery range with airport and living facilities, it is announced. Construction of the project, planned as one of the largest naval auxiliary air stations in the West, is expected to cost \$5 million.

First Close-Up

One of the first government-owned plants in the West to be actually closed up is the magnesium plant at Lathrop, California, operated by the Permanente Metals Corporation, as a result of the WPB cut-back on magnesium production. This was a DPU plant, whereas the main Kaiser magnesium plant at Permanente, Calif., is privately owned.

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Still Appreciates Western Industry

From the Aleutian Islands comes a welcome letter to *Western Industry* from Major George J. Kruse, owner of the Western Forge & Tool Works of Oakland. He says:

"Due to military activities my correspondence is limited and often, of necessity, sorely neglected. Nevertheless, I am moved to write and express in some degree my appreciation for your most excellent magazine.

"*Western Industry* and I are friends of quite long standing. Prior to entering the service in early 1942 I had advertised my

firm, the Western Forge & Tool Works of Oakland, Calif., to quite some extent in your publication. To date, I have had over 28 months of overseas service and each issue, though sometimes late in arriving, has served to keep me informed of trends and developments in industry throughout the West.

"This, supplementing letters from personal and business friends, is of extreme assistance in keeping my thoughts and plans for the future 'in tune with the times.' Together they keep alive and foster a mental attitude that should make easier the return to civilian activities at the conclusion of this war.

"Of particular interest, especially to those of us in the service, are your editorials and articles urging men of the industrial West to devote serious thought and concerted effort toward postwar planning. We are not naive to the extent that we believe the return to civilian economy can be accomplished without some measure of unemployment and maladjustment. We do believe, however, that these and other evils can either be eliminated or alleviated by intelligent planning and aggressive concerted action.

"I feel that your publication, in fostering and encouraging this attitude on the part of all is rendering a real service to every individual whose livelihood is dependent directly or indirectly upon the industrial growth and progress of the West.

"I join you in the hope that the future holds much of promise and incentive to all."

Different Psychology

Better results are obtained by keeping foremen and supervisors in different plant group conferences, rather than mixing together, because their psychology is different, is the experience of the General Cable Corporation. Austin Ross, personnel manager of their Emeryville, Calif., plant, told the N.A.M. Pacific Institute of Industrial relations, that both foremen and supervisors then feel more free to talk.

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Postwar Prospects For Aluminum

Judging by past records of use, it is not likely that Western consumption of aluminum in the first decade after the war will be more than 10 per cent of national production, or over 100 million pounds a year, according to A. A. Kearney, managing engineer, Inland Empire Industrial Research, Inc., Spokane.

In the 10-year pre-war period, the West used on an average of less than five per cent of the aluminum produced in the nation, but the increase in West Coast aircraft manufacture in the war has increased this to approximately 18 per cent. His figures are as follows:

WESTERN MARKET DEMAND FOR ALUMINUM BY YEARS IN PER CENT OF UNITED STATES PRODUCTION 1930-1942

Year	Per Cent	Year	Per Cent
1930.....	2.03	1937.....	5.44
1931.....	3.44	1938.....	6.04
1932.....	1.65	1939.....	7.32
1933.....	3.52	1940.....	13.02
1934.....	6.02	1941.....	18.80
1935.....	3.95	1942.....	17.95
1936.....	5.54		

"If Western aluminum production plants are to run after the war, it will be necessary to find markets outside of the area for a large percentage of the 800 million pounds capacity which will be available for use," Mr. Kearney says.

"Based on the assumption that the maximum opportunity will be given for private operation of the war-built aluminum

NAME		DEPT.				
		1	2	3	4	5
A	Volumes of Work	Insufficient Output <input type="checkbox"/>	Inclined to be Slow <input type="checkbox"/>	Average Satisfactory Output <input type="checkbox"/>	Turns out more work than general run of comparable employees <input type="checkbox"/>	Unusually High Output <input type="checkbox"/>
B	Initiative	A. Routine Worker Usually Waits To Be Told <input type="checkbox"/>	Sometimes needs to be Prodded <input type="checkbox"/>	Does Regular Work Without Waiting for Directions <input type="checkbox"/>	Resourceful, Alert to Opportunities for Improvement at Work <input type="checkbox"/>	Seeks and sets for himself additional tasks highly ingenious <input type="checkbox"/>
C	Cooperation To Foreman & Employees	Inclined to be Quarrelsome, Suspicious or Uncooperative. Upsets Morale. <input type="checkbox"/>	Sometimes Difficult to Work With <input type="checkbox"/>	Normally Tactful and Obliging. Self Controlled <input type="checkbox"/>	Always Considerate and Cooperative <input type="checkbox"/>	An Unusually and Strong Force for Good Morale <input type="checkbox"/>
D	Loyalty	Disloyal <input type="checkbox"/>	Doubtful Loyalty <input type="checkbox"/>	Loyal <input type="checkbox"/>	Very Loyal <input type="checkbox"/>	Greatest Possible Loyalty <input type="checkbox"/>
E	Attendance	More than 20 absent days in Six Months <input type="checkbox"/>	More than 10 days and less than 20 days in Six Months <input type="checkbox"/>	More than 5 days and less than 10 days in Six Months <input type="checkbox"/>	Less than 5 days in Six Months <input type="checkbox"/>	No Absent Days in Six Months <input type="checkbox"/>
F	Seniority	6 Months to Two Years <input type="checkbox"/>	2 Years to 5 Years <input type="checkbox"/>	5 Years to 10 Years <input type="checkbox"/>	10 Years to 15 Years <input type="checkbox"/>	15 Years and Over <input type="checkbox"/>

1. Do you think employee is in right job? _____
 2. If not, what job best suited? _____
 3. Do you think employee would make a foreman? _____
 4. Does employee get hurt often? _____

* In determining pay increases and promotions at the Pacific Wire Rope Company, Los Angeles, observers carefully check the records of individual workers on cards like this.

industry it is reasonable to conclude that:

"Privately owned aluminum plants in the Pacific Northwest can be expected to operate during the first decade after the war.

"Government-owned plants in this area should be more attractive to private industry than in other sections of the country."

Aluminum Surplus

June figures from the regional Distribution Branch of WPB are as follows:

	Incoming	Outgoing
Steel	6,779,148 lbs.	7,064,467 lbs.
Copper	181,064 lbs.	177,209 lbs.
Aluminum	375,472 lbs.	21,784 lbs.
Total, all controlled materials	7,335,684 lbs.	7,263,460 lbs.



DOWNS HANDLING EQUIPMENT

HORIZONTAL PLATE HOOKS may be used in sets of either two or four. Will handle one or more plates at each lift. They are time and labor savers for fast loading or unloading when plates are to be stacked in the flat position.

SAFETY PLATE GRIPS with either rigid or loose guide loops will hold with a positive grip in all positions. Used for handling vertical plates, they are also safe for upending or turning over horizontal plates or assemblies.

DOWNS RAIL TONGS built for safe and economical handling of railroad rails of all sizes and weights. Two-ton capacity with jaw openings of 3" for rails up to 100 lbs. ASCE. Three-ton capacity with jaw openings of 4½" for the heaviest rails.

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Shrader electro magnets for material handling, sorting. Magnetic blankets, pulleys, jigs, etc., for every industrial purpose. Shrader consulting service without obligation.

F. W. SHRADER CO.
CULVER CITY, CALIFORNIA

EFFICIENCY KINKS FROM WESTERN PLANTS

Production short-cuts • Worker's suggestions • Prize-winning awards

Because a girl employee became so efficient in operating an old-style rivet-sacking machine that she was asked to demonstrate her prowess, Boeing Aircraft Company now has a new mechanical marvel which automatically weighs rivets, dumps them into a cellophane sack and then seals the sack—completing the entire operation at a speed much faster than the former machine.

The girl who started all this became so good at operating the old-style machine that it was arranged for her to appear before a training class to demonstrate how many things a person can do at one time. In her job she had to use both hands and both feet to perform four separate operations in filling and sealing one sack of rivets. She had attained perfect coordination and wasted no motion.

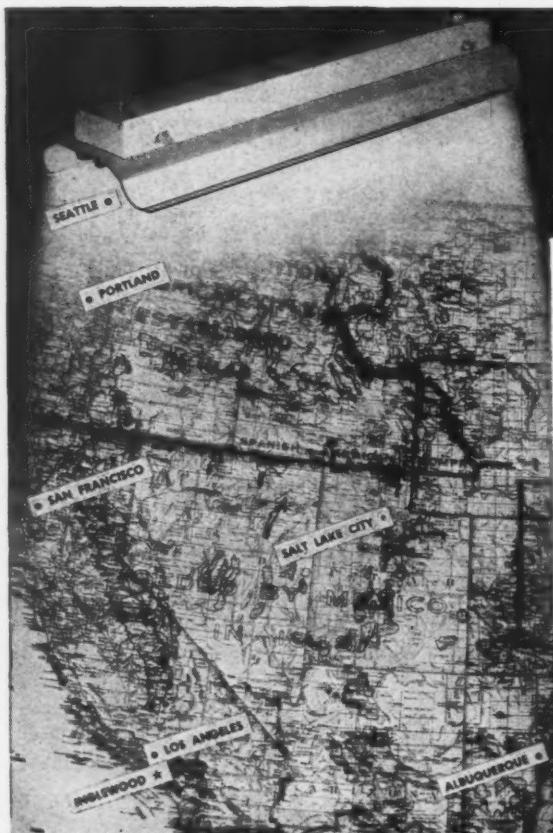
Those who saw her demonstration admitted she was good but several persons expressed the opinion that there must be a simpler way of sacking rivets.

As a result, following experimental work, a new machine was built and placed in operation. The new machine requires an



* Boeing solved the tough problem of pouring small rivets into sacks by developing an intricate but efficient machine to sack them automatically. Harry Hicks (pictured at left), one of the inventors, watches the production model built by Werner Roepe (right).

operator, too, but all the operator has to do is dump the rivets in a big hopper and remove the filled sacks. The rest is automatic.



YOUR WESTERN LIGHTING HEADQUARTERS

Every SMOOT-HOLMAN product represents years of research and experience (both of which have continued through the war period)...we are in a position to promise still better lighting equipment for the postwar future. Because our production is concentrated on the Pacific Coast with stocks throughout the West, we are able to provide an immediate and dependable supply for essential industries today and for all uses tomorrow.



**SMOOT-HOLMAN
COMPANY**

INGLEWOOD, CALIFORNIA

Offices in Principal Western Cities — Warehouse in San Francisco.

The machine's present capacity is 20 sacks a minute but improvements are being made which will increase this to 30 per minute. Even 20 sacks, however, is much faster than the former machine.

The machine has many characteristics of a Rube Goldberg cartoon creation except that it is a practical time-saver. Rivets are poured into the hopper at the top. A chute under the small opening in the bottom of the hopper vibrates against the hopper and rivets trickle out onto the chute and along the chute to a weighing balance. When this balance holds the exact number of rivets that are wanted in a sack, the balance trips and rivets are dumped into a smaller funnel.

At the same time the rivets are dumped, a conveyor brings a sack under the outlet of the funnel. A device like a vacuum cleaner opens the sack, a blast of air comes down through the funnel and keeps the sack open and the rivets fall into the sack.

The filled sack then is carried on a conveyor disc to the apparatus which seals it by applying pressure and heat to the open end. The filled sack then is placed in a container ready to go to the assembly line or fabricating shop.

Hydrogen Fuel Instead of Oil

Basic Magnesium Inc. are saving approximately 4,000 gallons of fuel oil daily by using instead 5½ tons of hydrogen that would otherwise be a waste because of lack of conversion and shipping facilities. The plant is located at Henderson, Nevada, between Las Vegas and Boulder Dam.

The hydrogen, which is a by-product of the chlorine manufacturing operation, is introduced into the boilers through ring burners containing 24 jets and the fuel is introduced through a steam-atomizing oil burner nozzle, both firing through the same port. The two in combination are the fuel supply for the steam plant.

Hot Rocks For House Heating

A method of house heating by using electricity in the off-peak hours to heat up rocks which in turn radiate warmth the rest of the day, has been developed by J. H. McLaughlin, electrical engineer for the Vancouver, Washington, housing authority. His estimate is that a two-bedroom house can be heated thus for \$35 a year as compared with \$375 for coal at present prices, and that the plant will cost less than the average pipeless furnace.

His plant consists of an insulated steel box 53 inches high, 21 x 43 inches square, resting on a concrete slab on the ground under the house and extending through an opening in the floor into the living room. At the bottom of the box is an air chamber through which cold air circulates from floor ducts, while above the chamber are eight 1,000-watt heating elements and above them 700 pounds of rocks.

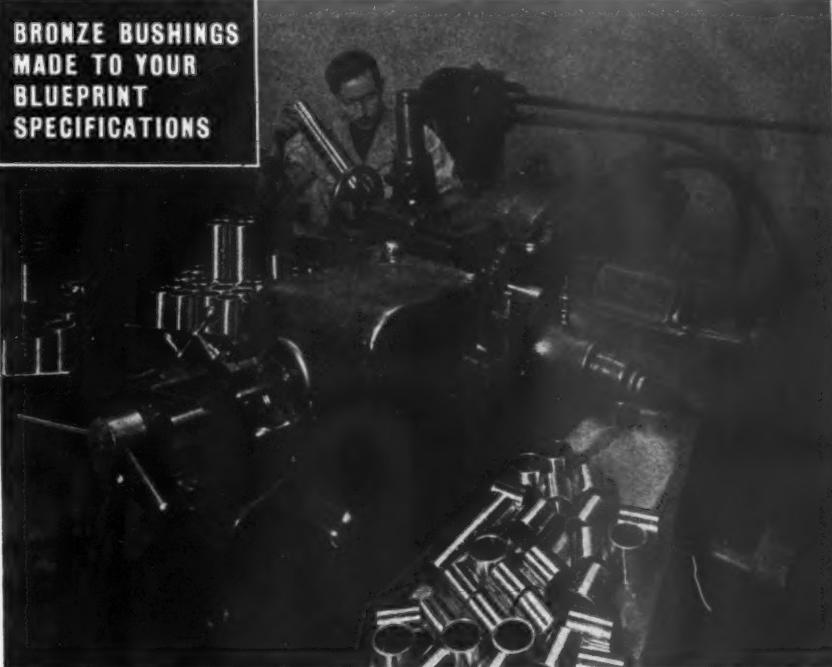
Oil Condensate Plant

The West's first large-scale cycling and condensate facility, to capture 60 million barrels of high-value underground oil reserves, has been completed in the old Buena Vista Lake area in the southern end of the San Joaquin Valley in California, tapping the Paloma sand. It is a cooperative venture by six oil companies, the Ohio Oil Co., Western Gulf Oil Co., Texas Co., Union Oil Company of California, General Petroleum Corp., and Barnsdall Oil Co. The plant will produce about 5,500 barrels of condensate, 800 of natural gasoline, and 1,200 of butane fractions in a day's run.

Northwest Fuel Needs

Solid fuel needs of Washington, Oregon and Idaho for the coming season will be about 5,580,000 tons, exceeding supplies by a million tons, according to Allen L. Willard, regional fuel section coordinator of WPB. He names wood and sawdust needs as 3,500,000 cords or units, exceeding present production by 200,000, and reports a shortage of trucks available for hauling fuel, the 4,604 trucks available needing to make four trips daily instead of 1.6 as last year, unless supplies are put in now.

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Scores of West Coast manufacturers of vital war equipment regularly depend on KINGWELL'S fast, accurate, economical production of bronze bushings "made to blueprint specifications."

Eighty-nine years' experience and production "know-how" enable us to give you good "made-to-order" Bushings On Time at Low Cost.



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San Francisco, California

LABOR AND THE INDUSTRIAL WEST

RECENT voluntary payment to the government of \$4,460 in liquidated damages by the Pacific Match Company of Tacoma for employment of boys and girls in violation of child labor provisions of the Walsh-Healey Public Con-

tracts Act, calls attention to the advisability of employers checking over federal and state labor laws to protect themselves against unwitting violations.

This is the highest amount of damages so far assessed in any of the seven Western



H₂SO₄ Hits Hirohito!

Sulphuric Acid plays a big part in the production of high octane gasoline, the life-blood of our Air Forces.

In the thirties the alkylation process using Sulphuric Acid as the catalyst, was developed to produce aviation gasoline of extra high octane rating.

As United States industry swung into war production, both the oil and chemical industries were simultaneously called upon to increase their facilities and production. STAUFFER erected several new plants and enlarged the capacity of all existing plants, increasing tremendously its Sulphuric Acid production.

With the attack stepped up in the Pacific, tons and tons of High Octane Gasoline are required—the more B-29's we can fly, the less Hirohito is going to like it.

Industry here on the Pacific Coast also requires great quantities of Sulphuric Acid in the manufacture of innumerable products, many of them necessary in the war effort. STAUFFER is exerting every effort to satisfy the requirements of all its customers.

Stauffer
CHEMICAL
SINCE 1883

STAUFFER CHEMICAL CO.

states for child labor violation of the Public Contracts Act. The firm employed 14 girls under 18 years of age and one boy under 16 for a total of 446 days while engaged on a government supply contract in excess of \$10,000. Liquidated damages at the rate of \$10 a day for each day each minor was illegally employed. In many cases the girls gave their age as 18 in order to obtain employment, but the company failed to verify their statements or to demand work permits or proof of age.

Work in canneries and dry sheds have been ruled non-agricultural and therefore subject to provisions of the acts. Children employed in agriculture are exempt from the Fair Labor Standards Act (the Federal Wage-Hour law) when not legally required to attend school.

Employers who have any doubts about whether children they employ are covered by the acts, or about any interpretation of the law, are urged by Wesley O. Ash, regional director of the Wage-Hour and Public Contracts Division of the Department of Labor to visit or write the nearest Wage Hour office for explanations of the law.

Those under 18 will be required to obtain a state work permit by employers in all Western states except Idaho, where a Federal certificate is issued, and the work permit is recognized as proof of age under Federal laws. To obtain this permit it will be necessary to present proof of age, preferably a copy of birth certificate. School officials issue work permits in California, Nevada, Utah, Arizona, and Idaho, while in Oregon and Washington permits are issued by State Department of Labor officials.

The Wage-Hour law prohibits shipment in interstate commerce of goods produced in an establishment in or about which there has been "oppressive child labor" within 30 days. Oppressive child labor is defined generally as employment of boys and girls under 16, but children between 14 and 16 may be employed in specified non-manufacturing and non-processing occupations which do not interfere with their schooling, health or well being, under the following conditions:

- (1) Maximum 8-hour day and 40-hour week when school is not in session;
- (2) All work must be performed between 7 a.m. and 7 p.m. (except distribution of newspapers);
- (3) Children 14 and 15 employed in cutting pears, peaches and apricots in fruit yards must not work more than six days a week; must have a meal period of 45 minutes; a 15-minute rest period in each half day; provision for seats, pure drinking water, washing and toilet facilities; and must not be exposed to sulphur-dioxide fumes.

For boys and girls 16 to 18 years of age "oppressive" child labor is defined as employment in occupations found by the Chief of the Children's Bureau to be particularly hazardous. They are:

- (1) Work in plants making explosives;
- (2) Driving or acting as helper on motor vehicle;

- (3) Work in coal mines;
 (4) Work in logging or sawmill operations, except for specified exemptions;
 (5) Operation of wood working machines; and
 (6) Any work which involves exposure to radioactive substances.

Employers working on government contracts subject to the Walsh-Healey Act should employ no one under 16 in production or handling of such goods. Girls 16 and 17 may be employed only under these specific conditions:

- (1) No girl under 18 shall be employed more than 8 hours in one day, or between 10 p.m. and 6 a.m. or contrary to state laws governing hours of work;
- (2) A definite lunch period of 30 minutes must be granted regularly;
- (3) No girl under 18 shall be employed at less than the minimum hourly rate set under the Wage-Hour law or the Walsh-Healey Public Contracts Act for the industry in which she is employed;
- (4) The contractor must keep on file an age certificate showing the girl to be at least 16 years of age;
- (5) No girl under 18 may be employed in an occupation declared hazardous by the Children's Bureau.

Too Much Poured Through the Funnel

Representatives of the Tenth Regional War Labor Board, meeting in San Francisco and Los Angeles with U. S. Commissioners of Conciliation, agreed upon a policy that if they believe either labor or management has failed to bargain in good faith with the other party, the board may refuse to consider their labor dispute and return the case to the parties involved and to the U. S. Conciliation Service.

Thomas F. Neblett, RWLB chairman, said there had been too much haste on the part of both unions and management to get their issues before the War Labor Board without even attempting to settle their differences themselves, piling unnecessary work on the Board and delaying settlements.

Lumber Wage Denial A Crucial Test

Denial by the War Labor Board of a wage increase in the pine and fir regions of the Pacific Northwest may well be the Guadalcanal of the fight to stabilize the wage structure of the nation, in the view of Dexter M. Keezer, public member of the Board. The majority, labor members dissenting, found that the record presented no convincing evidence that the manpower problem could be solved or even materially relieved by a general wage increase. Said Keezer:

"It is probably not too much to say that this case presents a crucial and what might well be a decisive test of the national wage and price stabilization program. The granting of wage demands which smashed the program might give the workers affected a temporary advantage. But history makes it perfectly clear that it would be decidedly temporary, and they would soon find themselves engulfed in the inflationary flood which their 'victory' had unleashed."

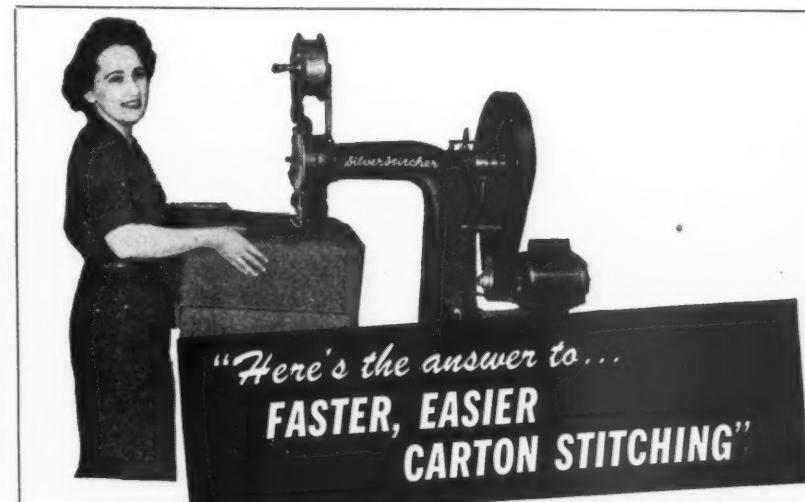
WLB Orders Escape Period Included

Two maintenance of membership clauses ordered by the West Coast Lumber Commission which did not contain the 15-day escape period customarily included by WLB have been set aside by the National War Labor Board. It also set aside the directive of the Commission that the companies "so far as is consistent with law" agree to recommend that the employees join the union.

With labor members dissenting, the Board directed that a standard voluntary maintenance of membership clause con-

taining the escape period be included in agreements between the Eaton Logging Company and the Powers-Davis Logging Company, both of Sweet Home, Oregon, and the International Union of Woodworkers, CIO. The agreements are the first between the parties.

The Commission's orders were appealed by the companies, which contended that they were unworkable and unfair. The union contended, on the other hand, that the type of union security clause directed by the Commission has been written into agreements in the industry for years and that 125 such agreements are now in effect in the Columbia River district.



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Ad No. 34A — Western Industry — August

THE WESTERN OUTLOOK...NEWS...STATISTICS.

THE PICTURE

Despite declining employment and a sharp drop in war production contracts awarded in May, the electric power consumption for the same month showed an upturn, even though there had been cutbacks in the output of aluminum and magnesium, two industries which are heavy users of hydro-electric power. Lumber has begun to pick up again after the walkout troubles of April. Petroleum production has been greater, both for May as compared with last year, and for the entire year to date.

Lumber—Recover from Strike

West Coast lumber production practically recovered in June the strike it was hitting in April before the walkouts and is now running neck and neck with production for same period in 1943. Military demands for lumber continue to be urgent, featured by insatiable demand for packaging and shipping lumber.

Because advancing Allied invasion forces are requiring new huge overseas shipments of lumber to rebuild docks, bridges, etc., the WPB has called for a halt to "deferrable" building in Southern California.

Working lumber stocks in the five Pacific Coast and hinterland lumber producing states were reduced more than 11 per cent by the demands of the first quarter this year, the Forest Service figures for that period show. They have since declined further. The first quarter reduction was more than 180 million board feet to a March 31 total of about 1,367 million feet.

The biggest reduction was faced in Califor-

nia—more than a quarter to about 367 million feet. At the beginning of the year the lumber stocks piled in California were larger even than those of the state of Washington and not far behind those in Oregon.

Cumulative figures for 26 weeks in 1944 and previous years in thousands of board feet reported by the West Coast Lumbermen's Association are as follows:

	1942	1943	1944
Production	4,406,478	3,818,360	4,121,469
Orders	5,322,931	4,128,387	4,352,006
Shipments	4,841,325	3,922,639	4,147,875

Western Pine Association figures covering Idaho White pine, Ponderosa pine, Sugar pine and associated species for the current year to July 1 are as follows:

	1943	1944
Orders	1,879,457	1,807,918
Shipments	1,825,436	1,770,978
Production	1,540,908	1,597,408

Ships—New Level Reached

A point of stabilization in shipbuilding tonnage on the West Coast apparently was reached in June, when 55 merchant ships were delivered, a substantial drop from earlier months in the year. As this was accounted for by final deliveries of the last of the Liberties and also the completion of contracts on concrete ships, it is expected the number of ships and tonnage delivered will stay at the present level. The Maritime Commission reports that 51 keels were laid and 50 ships launched, not counting two tug launched and three delivered.

	No. of ships	Thousands of deadweight tons
January, 1944	67	633
February	59	383
March	73	679
April	64	641
May	72	695
June	55	516

(Includes destroyer escorts and small aircraft carriers, but not larger naval vessels built by the navy itself. Also includes concrete barges, but not tugs or wooden barges. Tonnage figures from September are adjusted, previous months unadjusted. Deadweight tons are used as a rough measure of the cargo carrying capacity of the ship. All figures from U. S. Maritime Commission statistical department.)

Aircraft—More Bombers

The trend toward production of heavier warplanes is distinctly shown in the June figures from Pacific Coast airframe factories, which show the smallest number of planes delivered this year, but a high weight total. The figures are as follows:

	No. of Planes	Total Poundage
December, 1943	2,527	30,880,000
January, 1944	2,559	31,892,000
February	2,569	32,469,000
March	2,703	36,015,200
April	2,295	30,993,000
May	2,569	34,234,000
June	2,276	32,284,500

SWPC—Finish Successful Year

Smaller War Plants Corporation regional figures for the fiscal year, July 1, 1943 to June 30, 1944 show 14,280 prime contracts for a value of \$80,678,421. 4,475 of these jobs, valued at \$8,982,550, were placed with the assistance of SWPC in June.

Oil—First Supply Gain

Total demand for all petroleum products for the three Pacific Coast states, Arizona and Nevada in May was 900,000 barrels daily, the lowest figure since May last year. Supply increased 2,000 barrels daily to 911,000 barrels daily, and 11,000 barrels daily were added to storage, the first addition to storage since April 1943.

The supply of and demand for each of the principal products, according to data submitted to the Bureau of Mines, were virtually in balance in May, so that there was still no opportunity to replenish stocks to any appreciable extent.

War Production Contracts—Flock of Cancellations in May

In Thousands of Dollars—Source: War Production Board Statistical Division

NOTE: The monthly award figures shown below represent only an approximation of the actual contracts, because cut-backs and cancellation rates usually on previous awards, although reported in the current month. Also there is considerable lag in the reporting of individual contracts. However, WESTERN INDUSTRY is reporting the monthly awards by the successive subtraction method as an approximation.

MONTANA	IDAHO	WYOMING	COLORADO	N. MEX.	ARIZONA	UTAH	NEVADA	
All Other	Ships	All Other	Aircraft	Ships	All Other	Aircraft	Ships	All Other
January	...	370	1,280	...	125,636	824	...	112
February	1,384	52	7,858	...	241	374	...	66
March	34	50	602	98	119	3,068	573	175
April	29	...	13,000	...	520	-1,506	839	203
May	53	121	-12,638	250	...	6,022	161	300
Total from June, 1940	15,807	8,315	30,580	1,714	2,706	398,755	4,761	48,295
								23,928
								900
								169,227

WASHINGTON				OREGON			CALIFORNIA			TOTAL		
Aircraft	Ships	All Other	Aircraft	Ships	All Other	Aircraft	Ships	All Other	Aircraft	Ships	All Other	
January	...	1,549	23,782	...	7,803	12,600	2,390	280,712	46,041	2,390	290,176	211,463
February	...	94,257	-74,558	...	6,602	-760	221,910	142,683	26,174	221,910	233,509	-34,838
March	79	-226,602	-16,533	-169	3,136	-5,133	297,502	-	-12,828	79,517	406,743	-266,175
April	490,785	40,671	9,235	...	6,511	14,297	698,106	13,609	75,277	1,188,891	61,340	117,262
Total from June, 1940	2,372,689	1,756,382	353,336	1,033	1,125,534	136,871	9,569,876	4,076,998	1,635,163	11,994,507	8,962,728	2,800,844

Electric Energy—Trend Goes Upward Again

Production of Electric Energy for Public Use—In thousands of Kilowatt Hours—Source: Federal Power Commission

MONTANA	IDAHO	WYOMING	COLORADO	NEW MEXICO	ARIZONA	UTAH	NEVADA	California	Total Power			
All Other	Ships	All Other	Aircraft	Ships	All Other	Aircraft	Ships	All Other				
May	203,605	122,700	26,558	81,677	38,266	265,685	47,694	269,325	1,053,010	698,471	389,494	1,239,465
June	291,687	115,247	29,316	78,842	38,428	280,268	45,662	273,148	1,067,798	697,763	370,026	1,272,391
July	217,075	123,272	34,675	85,943	40,758	322,526	48,900	274,763	1,147,861	704,949	392,453	1,365,434
August	235,592	122,753	35,135	87,053	43,856	264,410	55,787	280,111	1,124,696	701,848	419,192	1,419,201
September	227,227	117,165	32,928	89,863	41,255	276,091	46,832	260,991	1,081,352	780,776	408,871	1,362,769
October	244,685	110,958	20,672	93,091	40,270	300,702	50,762	284,437	1,145,877	831,305	430,335	1,317,501
November	234,174	105,282	20,338	94,670	38,336	279,389	52,025	299,159	1,123,373	860,165	419,929	1,277,013
December	230,276	106,406	20,951	97,429	41,999	294,909	60,995	320,267	1,173,172	960,810	398,196	1,305,850
January, 1944	223,286	94,952	19,417	96,960	42,346	280,005	57,904	331,055	1,155,925	964,314	406,851	1,281,484
February	202,057	84,639	18,023	87,611	37,891	291,969	50,490	314,546	1,087,226	928,634	376,321	1,200,331
March	212,801	104,566	18,822	89,928	40,994	286,847	46,275	321,633	1,124,866	943,429	402,195	1,322,532
April	189,938	122,178	18,793	85,954	42,287	284,140	33,462	262,097	1,038,849	890,599	370,914	1,372,445
May	190,926	112,473	19,454	87,305	41,077	297,189	38,291	284,604	1,071,379	854,064	417,654	1,397,484

FROM THE RESEARCH DIVISION OF WESTERN INDUSTRY

Employment—Sloughing Off Continues

Estimated Number of Employees in Non-Agricultural Establishments—In Thousands—Source: U. S. Bureau of Labor Statistics

ALL INDUSTRY DIVISIONS

	Montana	Idaho	Wyoming	Colorado	New Mexico	Arizona	Utah	Nevada	Total	Mountain	Washington	Oregon	California	Total Pacific
May	111	106.6	60.5	280	78.3	118.9	173	47.4	976	643	351	2,694	3,688	
June	112	101.3	61.4	285	79.1	116.2	173	47.3	974	655	361	2,726	3,742	
July	112	100.4	61.0	284	81.8	112.4	180	44.8	976	673	362	2,734	3,769	
August	113	98.4	61.9	287	83.2	108.7	178	41.9	972	665	361	2,776	3,802	
September	115	102.0	62.1	290	80.7	107.6	175	44.0	976	675	362	2,717	3,754	
October	114	101.4	62.1	288	79.8	109.2	172	42.1	969	667	350	2,702	3,719	
November	114	100.5	62.1	282	79.0	111.0	168	43.1	960	666	344	2,691	3,701	
December	114	98.8	61.6	279	79.0	111.0	165	41.7	950	666	345	2,698	3,707	
January, 1944	110	95.0	60.6	265	76.4	108.4	150	40.4	906	644	334	2,635	3,613	
February	109	94.1	60.8	265	76.8	108.6	147	40.0	901	638	333	2,629	3,600	
March	109	95.5	69.4	259	76.4	108.2	142	39.9	889	636	332	2,605	3,573	

MANUFACTURING

	Montana	Idaho	Wyoming	Colorado	New Mexico	Arizona	Utah	Nevada	Total	Mountain	Washington	Oregon	California	Total Pacific
May	14.2	13.4	3.7	64.0	4.2	13.8	30.8	4.9	149	255	148	1,050	1,453	
June	14.4	14.0	3.8	65.6	4.5	13.1	33.7	5.5	154	263	153.7	1,061	1,478	
July	14.5	15.2	3.9	67.0	4.7	13.5	40.4	5.2	164	274	157.3	1,080	1,511	
August	15.2	14.2	3.9	67.0	4.6	13.4	36.9	5.0	160	271	157.9	1,142	1,571	
September	15.2	15.8	3.9	68.5	4.3	13.2	35.8	5.1	162	279	161.3	1,088	1,528	
October	15.9	15.7	4.3	69.2	4.3	13.6	36.4	4.8	164	278	150.8	1,066	1,495	
November	15.8	14.9	4.5	65.0	4.9	16.5	32.1	5.0	159	277	146.6	1,052	1,478	
December	15.0	14.3	4.0	58.6	4.9	16.5	28.2	4.7	146	273	145.0	1,034	1,452	
January, 1944	13.9	12.8	3.7	53.7	4.8	15.9	22.4	4.6	132	267	139.1	1,010	1,422	
February	13.8	12.6	3.8	53.5	4.8	15.4	20.8	4.5	129	264	136.6	1,008	1,409	
March	13.7	13.0	4.0	47.9	4.8	15.7	18.8	4.2	122	262	134.9	987	1,384	

Decreasing for the ninth month in succession, California's factory force dropped to 826,800 wage earners in May from 839,900 in April and 862,900 a year ago. The volume of factory employment this May was at the lowest level since January 1943, the California Division of Labor Statistics reports.

A seasonal contraction of 2,500 wage earners in nondurable goods industries to 181,700 in May from 184,200 in April contributed to the month-to-month decrease but the net loss of 10,600 factory workers from durable goods industries was principally responsible for the overall decrease in manufacturing employment. The 445,100 production workers in durable goods industries in May represented the lowest level of employment in these industries since December 1942.

A decrease of 6,700 wage earners in aircraft plants brought the factory force in this industry down to 199,400 in May from 206,100 in April and 243,500 a year ago. The number of workers this May was the smallest since September 1942. In private shipyards, the working force of 246,900 wage earners in May was down 6,100 from April and represented the lowest level since December 1942. In May 1943, private shipyards employed 271,800 production workers.

Including office, clerical, sales, construction, executive, technical and professional personnel, it is estimated that 1,068,000 persons were employed in manufacturing plants in California in May 1944. This compares with 1,082,000 in April, 1,105,000 in May 1943 and 811,000 in May 1942.

EMPLOYMENT—DURABLE GOODS INDUSTRIES (Figures from Calif. Div. of Labor Statistics)

	San Francisco	Los Angeles	Total
	Bay Area	Indus'l Area	State
Jan. 1944	221,200	369,200	698,800
February	218,600	363,600	689,600
March	212,100	354,700	670,900
April	205,000	347,900	655,700
May	202,200	339,400	645,100

Iron—Movement Greater

Iron shipments from the Western states for May were 45,573 tons greater than in April. Bureau of Mines figures in gross tons are as follows:

	SHIPMENTS	Total stocks, end of May
Steel fur-nace ore	Other ore	Total
California	142	57,335
Utah	247	134,486
Wyoming	5,766	134,733
		5,155
Total	6,155	256,390
		252,745
		270,666

Copper—Further Declines

Copper production (in terms of recoverable metal) from domestic mines (including Alaska) was 85,848 short tons in May, a decrease of 1,986 tons (2 per cent) from that in April, according to preliminary estimates of the Bureau of Mines, United States Department of the Interior. The average daily production in May was 2,769 tons, a decrease of 159 tons from the daily average of 2,928 tons for April and a decrease of 199 tons from the daily average of 2,968 tons for January-March 1944.

Output of recoverable copper in the Eastern states increased 203 tons over April but was more than offset by a decrease of 2,562 tons (3 per cent) in the output from the combined Western states. Production from virtually all of the major Western copper-mining states was less. A continued shortage of labor at the mines, mills, and smelters—many of which are now operating on a one-shift basis—was the most important single factor contributing to the decline, which was most marked from New Mexico, Arizona, and Utah. Production figures from the principal Western states are as follows, in short tons:

	Jan.-March	April	May (prelim.)
Arizona	102,224	33,967	33,250
Montana	35,421	10,683	10,400
Utah	79,046	24,545	24,000
Total Western (inc. other states)	255,624	82,822	80,260

Cement—Liquidation Starts

Although cement plant activity for May in the Pacific Coast states was one of the two highest districts reporting, output still was considerably below May 1943 level. California's output was 26 per cent less, Oregon and Washington 36 per cent off and the five intermountain states of Colorado, Wyoming, Montana, Utah and Idaho 54 per cent.

Stocks in the Western area were much above those of a year ago, but the national total dropped off sharply in April and May, and the Bureau of Mines reports that the reduction may mark the start of liquidation of stocks of cement

made under emergency alternate specifications, as the first step by the producers toward resumption of production of regular specification cements when WPB's L-179 limitation on cement production is removed.

Cement production figures reported by the Bureau of Mines (in thousands of barrels) are as follows:

	Colo.-Wyo. Mont.	Calif.	Oreg.-Wash.	Utah-Idaho
Year to date	8,566	5,788	2,006	1,680
1943	1944	1943	1944	1943
Feb.	1,561	1,000	446	291
March	1,740	1,231	446	381
April	1,680	1,317	417	368
May	1,701	1,260	301	323
			449	206

Year to date 8,566 5,788 2,006 1,680 1,544 842

Swan Island's Efficiency Record

Rear Admiral Vickery, vice-chairman of the U. S. Maritime Commission, took occasion at a recent press conference to name the Portland shipbuilding yards as the most efficient in the entire country.

The Swan Island yard began with 115 days on the ways for its first ship and reached a peak of 169 days on its eighth ship, but from that point the days steadily decreased until hulls Nos. 43 and 44 set new records of 48 days on the ways. Present production schedules call for from 36 to 40 days on the ways.

Strongest competitor to Swan Island is Marinship at Sausalito, California. Swan Island's labor cost has decreased from \$1.47 to 98c per man hour per vessel, a 74 per cent improvement, despite a rise in hourly average wage from 98c to \$1.38

per hour. The yard has 24,000 employees, 8,114 of whom are women, who do 47 per cent of the welding on each ship.

Records Made On Hay Baling

Nearly two 125-lb. bales of hay a minute, or $7\frac{1}{2}$ tons of mixed alfalfa and barley hay in 10 hours and 15 minutes, is the score of a pick-up baler crew on the Goodyear Tire & Rubber Company's new hay baler on the Goodyear Farms at Litchfield, Ariz. The same crew put up 67 tons in 10 hours the following day, and averaged $45\frac{1}{2}$ tons a day for 33 days.

The baler was mounted on pneumatic tires, with a tractor having liquid-filled tires supplying motive power. Tractors on liquid-filled tires pulled loaded trailers to storage piles in a continuous handling process.

Russian Order

Russia has ordered 800 of the new type Fahrenwald flotation cells, enough to handle 2,200,000 tons of ore a day, the Northwest Mining Association was told by the inventor of the device, Dean A. W. Fahrenwald of the University of Idaho School of Mines. He said he had perfected a device which makes it possible to control the size of the bubbles that help separate metal from ore, thereby greatly increasing the efficiency of the cells.

OPPORTUNITY SECTION

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THE WEST ON ITS WAY

CALIFORNIA

STORE BUILDING ADDITION AND ALTERATION—C. W. Driver, Inc., 111 W. 7th Street, Los Angeles, has been awarded the contract for a one-story store building at 150 E. Main St., Compton, for the Sontag Chain Stores Co., Ltd.

FERMENTATION BUILDING ALTERATION—Herman Henning, 4215½ Crenshaw Blvd., Los Angeles, will alter a fermentation building at Culver City for the LAC Chemicals, Inc. Estimated cost \$20,000.

FOUNDRY BUILDING ADDITION—T. R. Gardiner, 2707 Union St., Oakland, constructing a one-story steel foundry building at 2711 Union St., Oakland, for self, at an estimated cost of \$30,000.

STRUCTURAL STEEL FABRICATION—Pacific Iron & Steel Co., 11633 S. Alameda St., Los Angeles, has been awarded a negotiated contract by the U. S. District Engineer Office at \$75,000 for fabrication of 500 tons of structural steel for the Kaiser Shell loading plant at Fontana.

WOOD COOLING TOWER—The Fluor Corp., Ltd., 2500 Atlantic Blvd., Los Angeles, has been awarded a negotiated contract by the U. S. District Engineer Office at \$23,525 for the construction of a wood cooling tower at the Kaiser Shell loading plant at Fontana.

EQUIPMENT SHED AND APPURTENANT FACILITIES—Edw. R. Siple Co., 2545 San Fernando Road, Los Angeles, was awarded contract by the U. S. District Engineer Office at \$3500 for construction of an equipment shed and appurtenant facilities at the Pomona QM Depot, Remount, Pomona, Calif.

RECORD STORAGE VAULT—Guy F. Atkinson Co. and Geo. Pollock Co., Heartwell Bldg., Long Beach, will build a record storage vault, 36 x 63 feet, at 1524 Oregon St., Long Beach for themselves. Cost, \$7500.

NEW PLANT—State Packing Company, 3163 East Vernon Ave., Los Angeles, is erecting a new plant at the above address which will contain approximately 20,000 sq. ft.

WAREHOUSE AND OFFICE BUILDING—Republic Supply Corp., 2122 East Seventh St., Los Angeles, is erecting a warehouse to contain 10,800 sq. ft. and a two-story office building of 5400 sq. ft.

PLASTICS FACILITIES—Ralph Barnes Moulded Plastics, 6518 South Avalon Blvd., Los Angeles, has increased its production facilities five times by moving to the above location where 16,000 sq. ft. of floor area are utilized.

NEW BUILDING—B. M. Bodde, 10855 Venice Blvd., Los Angeles, will erect a 10,000 sq. ft. building at 9160 Exposition Blvd.

BUILDING ADDITION—Patterson-Ballagh Corp., 1900 East 65th St., Los Angeles, will erect a 5,000 sq. ft. addition for increased production of oil well tools.

WAR CONTRACT—Gladden Products, Inc., Glendale, received Navy contract for \$51,700 for aircraft parts.

CROWNS AND CLOSURES FACTORY—Crown Cork & Seal Co., Inc., Baltimore, plan to erect a modern fireproof building with appropriate facilities for the manufacture of crowns and closures. Machinery and equipment of latest design will be installed. A 33-acre site has been selected on Bayshore Blvd., San Francisco.

OFFICE BUILDING—Charde & Brindle, 4263 Holly Knoll Dr., Hollywood, have been awarded a contract for the construction of a reinforced concrete office building at 2500 E. 12th St., Los Angeles, for the Crown Body & Coach Corporation. The building will be two stories high and will cover an area 23 x 49 feet.

COLD STORAGE AND REFRIGERATING PLANT—Earl T. Heitschmidt and Chas. O. Matcham, 417 S. Hill St., Los Angeles, are preparing working plans for a one-story cold storage and refrigerating plant to be erected in Bishop for the Inyo Coca Cola Bottling Co. The building will contain approximately 2000 sq. ft. of floor space.

GASOLINE REFINERY AND CYCLING PLANT—The Fluor Corp., 2500 Atlantic Blvd., Los Angeles, will build a gasoline refinery and cycling plant at the South Coles Levee oil field, near Bakersfield, for the Ohio Oil Co., Los Angeles.

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THE WEST ON ITS WAY

HOSPITAL ACCOMMODATIONS—Construction of additional hospital accommodations at the U. S. Veterans Facility at West Los Angeles is under way. Cost, \$2,044,396.

WAREHOUSE—Western-Walker Co., 1741 East 15th St., Los Angeles is erecting a 24,000 sq. ft. warehouse at its Terminal Island plant.

DRYDOCKS—Additional development of Navy drydocks at Hunter's Point, San Francisco and Terminal Island, Los Angeles, is contemplated.

PLANT FACILITIES—Defense Plant Corp. has authorized \$160,000 for plant facilities, Kinney Aluminum Co., Los Angeles, Calif.

PLANT ADDITION—Vernon Tool Company will build a plant addition at 1101 Meridian Avenue, Alhambra, Calif.

ENGINE TEST BUILDING—Vega Aircraft Corp., 2555 North Hollywood Way, Burbank, is having plans made for an engine test building to cost more than \$40,000.

PLANT—Stewart Metal Products Co., organized by Lester Brown Stewart and associates will establish its plant at 914 South Merced Avenue, El Monte, Calif.

PLANT—M. & M. Tool Works has been formed by John Mooss and will operate a plant at 2422 San Gabriel Blvd., Garvey, Calif.

WPB PROJECTS—Dismantling of Army installations at Santa Anita racetrack for removal to the Kaiser Steel Mills at Fontana were among the projects approved recently by the War Production Board. Other projects approved: building of a railroad at the Kaiser Fontana plant to handle shell shipments; cost \$40,254; addition to Van Nuys Metropolitan Airport, cost \$24,300; alterations at Lockheed Aircraft Plant B, Burbank, cost \$3,156,379; expansion of paper processing facilities at Los Angeles plant, cost \$700,000; construction of carbon monoxide unit at harbor refinery, cost \$860,827; boiler rebuilding at Los Angeles oil plant, cost \$43,928; erection of addition to oil making facilities in Kern Co., cost \$3,935,401; drilling of water well at Bakersfield refinery, cost \$7500.

POSTWAR BUILDING PROGRAM—Recommendations for additional building allowances of \$40,000,000 have been submitted to the State Legislature by Governor Warren, bringing the state's postwar program up to \$100,000,000.



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SPRAY ROOM—Robert V. Derrah, 9470 Santa Monica Blvd., Beverly Hills, is preparing plans for the construction of a spray room in a building at 1700 Santa Fe Ave., Los Angeles, for Southern California Gas Co. Cost, \$10,000.

FORGE BUILDING—Plans are being completed for a forge building to be built at Lincoln Blvd. and Maxella Ave. in the La Ballona district, near Culver City, for the Arcturus Mfg. Corp.

CHEMICAL FACTORY—The Union Carbide & Chemical Co., 30 E. 42nd St., New York City, is having plans prepared by its construction department for a new manufacturing and storage plant to be built on a 9-acre site west of Morena Blvd., San Diego, for the Linde Air Products Co., a subsidiary, 4771 Worth, Los Angeles.

EXTENSION—J. O. Oltmans & Son, 810 E. 18th St., Los Angeles, has been awarded contract by the U. S. Rubber Co. for the construction of 15 x 30 extension to the mezzanine floor in the company's plant at 5675 Anaheim-Telegraph Rd.

BOILER HOUSE—Dinwiddie Construction Co., 210 Crocker Bldg., San Francisco, has been awarded contract by the U. S. Navy, Bureau of Yards and Docks, at \$579,800 for construction of boiler house, roads, walks, gas distribution system and wharf at auxiliary airfield, Oakland.

SHOP BUILDING—Bowers Hoist & Winch Co., 1425 Nadeau, Lynwood, will build a shop building 30 x 75 ft., 18 ft. high, for self.

ADDITION TO WAREHOUSE—The Austin Co., 777 E. Washington Blvd., Los Angeles, has the contract to build an addition to a one-story warehouse at 830 E. "D" St., Wilmington, for Bemis Paper Bag Co. Cost \$35,000.

COLORADO

PASSENGER AGENT STATION—Roland L. Linder, Insurance Bldg., Denver, Colo., is preparing preliminary plans for the construction of a passenger agent building next to the Union Station in Denver for the Denver Union Terminal Railway Co.

SHELL PRODUCTION PLANT—Fegles Construction Co., Ltd., 711 Wesley-Temple Bldg., Minneapolis, Minn., awarded contract by U. S. District Engineer Office for the construction of a shell production manufacturing plant at the Denver Ordnance Depot, Denver, Colo. The plant will be operated by the Kaiser Co. Estimated cost approximately \$500,000.

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SEATTLE

THE WEST ON ITS WAY

TRAINER BUILDINGS—Bids are being received by the U. S. District Engineer Office for the construction of two celestial navigation trainer buildings at Pueblo Air Base, Pueblo. Estimated cost, \$50,000.

MANUFACTURING PLANT—Wm. N. Bowman Co., Insurance Bldg., Denver, is preparing plans for the construction of a reinforced concrete, fireproof manufacturing plant on 900 block, South Broadway, Denver, for the Gates Rubber Co. The building will be four stories and basement, 175 x 185 ft., containing approximately 2,000,000 cu. ft.

MANUFACTURING PLANT—Carlos Bellamy, 1555 Madison St., Denver, Colo., has the contract for the construction of a manufacturing plant in Littlejohn, Colo. for Heckethorn Manufacturing & Supply Co. The building will be one story of brick construction. Estimated cost \$50,000.

TRANSMISSION LINES—Albert B. Amidon, P. O. Box 97, Capitol Hill Station, Denver, Colo., was awarded contract by the San Isabel Rural Electrification Assn. for the construction of the Gardner-La Veta extension to San Isabel Line, Pueblo, at \$39,785.14.

IDAHO

ALFALFA PLANT—Under the corporate name of "Idaho Dehydrator, Inc.", facilities for the dehydration of alfalfa at Caldwell are being expanded and improved. The new corporation is owned and operated jointly by the Idaho Egg Producers of Caldwell and the Douthitt Corp. of Chicago. Construction cost estimated, \$100,000.

NEVADA

MICA TRIMMING PLANT—Strategic Minerals Co., Ltd., have opened a mica trimming plant on Commercial St., Elko, Nev. Mica is being brought in from deposits in the Ruby Mountains.

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NEW MEXICO

CENTRATING UNIT—Southwestern Engineering Company has started dismantling the Grey Eagle Chrome Concentrator in Glen Co., Calif., for United Mining and Milling Company of Socorro, New Mex. The equipment from the Grey Eagle plant is being incorporated in a 300-ton concentrating unit Southwestern is designing and will erect for United at their manganese property near Socorro.

OREGON

FACTORY BUILDING—The Chapman Mfg. Co., Corvallis, Ore., has started work on the construction of a foundation 100 x 200 ft. for a factory building to manufacture plastics, at Corvallis, Ore. for self. Estimated cost of the factory will be \$30,000 and estimated cost of machinery including hydro-electric equipment, \$270,000.

POWER PLANT ADDITION—Bureau of Reclamation, Bend, Ore., have completed plans for an addition to be built to the Pacific Power and Light Co. power plant 200 miles east of Portland. Estimated cost, \$300,000.

REHABILITATION CENTER—Brennan & Cahoon, Pendleton, Ore., have been awarded a supplemental contract by the U. S. Navy Bureau of Yards and Docks, at \$1,500,000 for additional work at the marine barracks and rehabilitation center at Klamath Falls, Ore.

UTAH

MANUFACTURING PLANT—The first definite move to convert one of Utah's war factories into a permanent peacetime industry was under way by the Reliance Manufacturing Company, Chicago, which has taken over the plant and equipment of the Parachute Company of Utah and after completing war contracts will operate the Manti location for the manufacture of certain clothing items.

LABORATORIES—The War Production Board has approved the construction of a one-story building for two laboratories, an animal room, food preparation room and other accommodations at the Salt Lake General Hospital for use by University of Utah students. Cost, \$14,000.

Announcing
THE CLEVELAND
SPEEDAIRE
REDUCTION UNIT



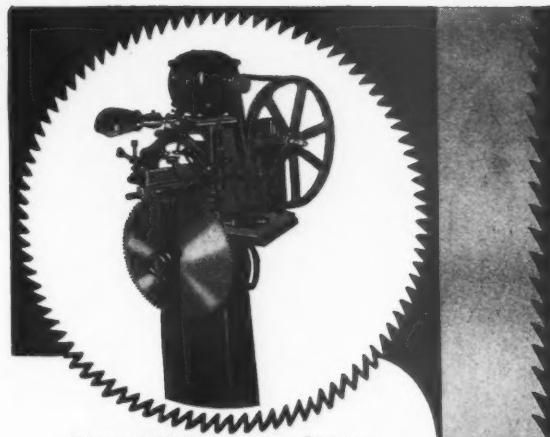
The new Speedaire Fan-Cooled Reduction Unit gives you more horsepower per dollar because Speedaire offers as much as twice the capacity of standard worm gear units of equal frame size, when operated with 1750 r.p.m. motors. Heat is dissipated by an exhaust fan drawing a high-velocity air stream across the

inner housing wall. Easily installed—sturdy and dependable, like all Cleveland Units.

Write for the new Speedaire Catalog — complete with photographs, drawings, charts, engineering data. The Cleveland Worm & Gear Company, 3269 East 80th Street, Cleveland 4, Ohio.

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Affiliate: The Farval Corporation, Centralized Systems of Lubrication

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FAN COOLED Worm Gear Reduction Units



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Inaccurate saw filing can ruin the cutting efficiency of the best saws, perhaps crack or break them. The machine precision of Foley Saw Filing can increase your sawing output 25% to 40%. The Foley automatically joints the saw as it is filed, making all teeth uniform in size, height, spacing. Foley-filed saws run cooler, cut fast, do beautiful work—and stay sharp longer.

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In the U. S. Maritime Service rope is doing an important job in preparing ordinary seamen to become able bodied seamen. Because rope is so vitally needed—not only for jobs like this but in every phase of our war effort—it is important that you conserve it and replace only when needed. When you do replace you can be sure of maximum value by specifying TUBBS and PORTLAND rope to your supplier.

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WASHINGTON

FACILITIES—Clyde M. Ludberg, 326 1st Street, Seattle, has been awarded contract by U. S. Dist. Engineer Office, Seattle, for construction of motor maintenance facilities at the Spokane Army Air Depot, Spokane, Wash.

BUILDINGS—J. W. Bailey Construction Company, 228 Ninth Avenue North, Seattle, has been awarded \$185,570 contract by the 13th Naval District, Seattle, for construction of buildings at Naval Air Station, Seattle, Washington.

CRANEWAYS—Star Machinery Company, 207 Horton Street, Seattle, will build a craneway to cost about \$11,000. Doran Company, 63 Horton Street, Seattle, will also install a craneway at its plant.

SUBSTATION IMPROVEMENTS—Bergesen, Wick & Dahlgren, 204 30th Ave., Seattle, Wash., were awarded contract at \$41,973 for city light extension job at the South Substation, Seattle, Wash.

RAILROAD SIDING—Leo S. Ross Construction Co., 4554 Thaddeus Place, Seattle, Wash., has been awarded contract by U. S. District Engineer Office at \$21,048, for the construction of a railroad siding at Seattle.

LAUNDRY AND DRY CLEANING PLANT—Teufel & Carlson, 114 Henry Bldg., Seattle, have the contract for construction of a one-story concrete laundry and dry cleaning plant for the Model-Washington Laundry & Dry Cleaning Co. Estimated cost, \$200,000.

SCHOOL BUILDING—G. J. Bouten, E. 2425 Nora, Spokane, Wash., was awarded contract at \$51,880 for construction of a brick grade school building at Moses Lake, Wash.

WYOMING

AIRPORT IMPROVEMENTS—Peter Kiewit Sons Co., 1024 Omaha National Bank Bldg., Omaha, Nebr., have been awarded contract at \$480,845.94 for airport improvements in Sheridan, Wyoming.



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Hollywood Heat Treating Company speeds up its output with an efficient S & M designed and installed materials handling system, consisting of a crane with a one ton hoist traveling on two 87' flexibly suspended runways of Cleveland Tramrail archbeam. The 18' push type tramrail crane affords complete coverage of all box furnaces, quench tanks and loading

area, eliminates heavy lifting and requires a starting effort of only 15 lbs. and running effort of only 10 lbs. per ton moved.

The track surface of the runways is high carbon, precision rolled, rail, having minimum Brinell hardness of 260. In this installation, a low headroom hoist was used, giving maximum lift.

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• Alligator V-belt Fasteners and the open-end V-beltting now being made by belting manufacturers, will enable you to make up multiple V-belt drives from roll belting. These fasteners have been on the market 9 years and are now being used on a wide variety of drives.

Available for B, C, D sizes of belt for industrial use and 1-in. and 2-in. sizes for railroad use. These fasteners, however, should not be used for repairing endless cord V-belts.

Bulletin V-205 will give you complete details as to where and how these fasteners are used, sizes, list prices, tools and application instructions. A copy will be mailed at your request.

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**KEEPS OIL IN
PROPER SUSPENSION**

Dissolves oil sludge. Reduces carbon deposits in burner and heating areas. Maintains steady, free flow of oil. Improves atomization. Easy to use. Simply add one pound for each 1000 gals. of fuel oil.

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WESTERN

TRADE WINDS

NEWS ABOUT THOSE WHO DISTRIBUTE AND
SELL INDUSTRIAL EQUIPMENT AND MATERIALS



Herman D. Nichols

Herman D. Nichols, vice president of Tubbs Cordage Company, is back again at his desk at 200 Bush Street, San Francisco, to take over an important part in Tubbs Cordage Company's postwar planning. Mr. Nichols has been on duty in Washington, D.C. as hard fiber consultant and chief of the Agricultural Products Branch of the Conservation Division. For the past two years he has

taken part in the nation-wide campaign that has been carried on by the country's cordage manufacturers for the conservation of hard fiber and rope.

Pacific Cutter & Reamer Co. are now occupying their plant and offices at 6611 S. Western Avenue, Los Angeles, reports A. E. Chesley, partner and resident manager. Mr. Chesley was formerly with the Standard Reamer & Tool Co. of Ferndale, Michigan, as general manager.

S. M. Gahagen has become Pacific Coast district manager of the Rustless Iron & Steel Co., with headquarters at Los Angeles. He succeeds Thomas L. Moore who becomes eastern sales manager. Mr. Gahagen was formerly chief plant metallurgist for the Vanadium Corporation of America.

Norman Barnes, formerly a partner of Mackie & Barnes, shingle manufacturers in Hoquiam, Washington, is now located at 811 West Seventh Street, Los Angeles. He is engaged in the heavy road machinery business.

Loggers & Contractors Machinery Co. of Portland is establishing a branch at Klamath Falls, Ore., to service the LeTourneau account in northern California, a territory recently assigned to the Portland firm.

A change of name from the Apex Sheet Metal Works to Flohr & Co., metal fabricators, is now effective according to an announcement made jointly by the co-owners, Edward W. Flohr and Carlos Flohr.

E. B. Drisko, West Coast manager, Broderick & Bascom Rope Co., manufacturers of Yellow Strand wire rope, announces the appointment of J. T. Robinson to their sales staff. Mr. Robinson will contact the logging industry west of the Cascades in the state of Washington. E. M. Conser has been appointed sales representative for southern Oregon and the territory north of Red Bluff, California.

Walling Tractor & Equipment Corp. of Portland, Oregon have been named the new distributor for the Osgood Company, Dayton, O., in the six counties of Southern Washington and the entire state of Oregon.

Thomas J. Kehane of East Orange, N. J., has recently been appointed commercial vice president in charge of Worthington Pump & Machinery Corp.'s Pacific Coast activities. His headquarters will be in San Francisco.

Herman D. Nichols, vice president of Tubbs Cordage Company, is back again at his desk at 200 Bush Street, San Francisco, to take over an important part in Tubbs Cordage Company's postwar planning. Mr. Nichols has been on duty in Washington, D.C. as hard fiber consultant and chief of the Agricultural Products Branch of the Conservation Division. For the past two years he has

Fruehauf Trailer Company names W. J. "Jack" Jarvis manager of the Portland branch factory, succeeding the late Lee Cronkhite. Mr. Jarvis has been active for 15 years in designing and manufacturing logging and highway trailers as well as in sales and service.

Dee Breen was recently appointed Western Division sales manager of Littlefuse, Inc., with territory covering the Western States and headquarters at the company's plant, El Monte, California. Before his connection with Littlefuse, Mr. Breen served in Washington as expeditor of materials for the U. S. Signal Corps.

Spencer & Morris of Los Angeles announce another new appointment for D. R. Rooke, industrial engineer. Mr. Rooke is now manager of their San Francisco office.

L. D. Pulsifer has been appointed appliance manager for the North Pacific district of the Westinghouse Electric Supply Co., headquarters at Seattle.

Ampco Metal, Inc., in order to improve delivery and service to West Coast customers, has built and completely equipped a new plant at 30 East Burbank Blvd., Burbank, Calif. The same personnel, which were with the company's previous West Coast manufacturing facilities, the Hollywood Aluminum Products Division, will be at Burbank. E. H. Wilson is the works manager; P. O. Bergmann, plant superintendent; O. D. Cooper is the field service engineer assisted by L. C. Dean.

Joseph T. Ryerson & Son, Inc., of Chicago, steel distributors, announce the appointment of George W. Gilliland as manager of the company's district sales office in the Architects' Building, 816 W. Fifth Street, Los Angeles 13, California. Mr. Gilliland has spent practically his entire business life in the steel business, becoming associated with Ryerson in 1934. Prior to his appointment to head of Los Angeles office, he represented the firm in Indiana. E. F. Wood who is in charge of the Ryerson sales office in Denver, Colorado, continues as representative of the Rocky Mountain states and the San Francisco area.

The Watson-Stillman Co., Roselle, New Jersey, announces the appointment of Walter L. Duhig as Pacific Coast agent for the company's Distributor Products Division. Mr. Duhig enters his new field after more than 20 years in the industrial supply business. He has established offices in the Van Nuys Building, Los Angeles.



George W. Gilliland



Walter L. Duhig



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There's only one important job now . . . backing up the armed forces. We've been concentrating on it for more than two years. But after victory, our dealers will have a new "sales weapon": PAYNE Zone-Conditioning, post-war successor to old-fashioned central heating. * Meanwhile, let's all buy more, and more, War Bonds.

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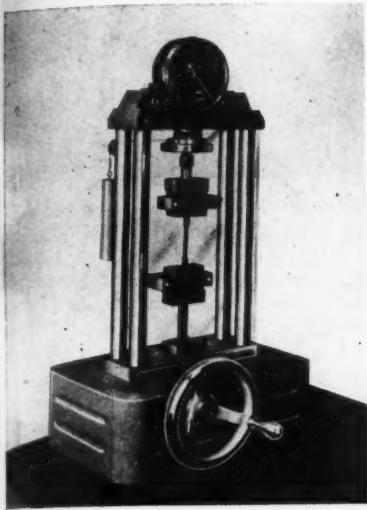
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EVERYTHING**

**Payne FURNACE & SUPPLY CO., INC.
BEVERLY HILLS, CALIFORNIA**

THE SHOWCASE

27

Tensile Tester—A precision instrument for precision testing. All Dillon Tensile Testers are shipped complete with standard gripping jaws. These consist of serrated V wedges, notched holders and channel, swivel socket connector and adjustable outer clamp support. The grips,



bright chrome plated for smoother action, eliminate bruised fingers and hammering to dislodge specimens. *W. C. Dillon & Co., Chicago, Ill.*

28

Thermometer Bulb Insert—The Manufacturers of the Rosan Locking System for Threaded Inserts and Studs in all materials announce a new development of the system which is the Rosan Thermometer Bulb Insert used in tank and plumbing installations. It is adaptable to both old and new type thermometer bulbs; is made of steel and inserted in soft metals; if insert is damaged, it can be easily replaced in such installations without removing the plumbing or the tank. The manufacturers are ready to furnish engineering service to interested parties. *Bardwell & McAlister Inc., Hollywood, California.*

29

Precisionometer—With bench comparator accuracy, this portable indicating comparator measures work on the machine in ten-thousandths of inches. It is scientifically constructed to compensate automatically for temperature variations. The handle is of Tenite plastic and is designed so that the operator's thumb will not touch the indicator. Handles are made in two colors—one for inspector's and one for operators' instruments. *Precision Plastics Company, Philadelphia, Pa.* mold the handles for *Bellwether Laboratories, Upper Darby, Pa.* Tenite is manufactured by *Tennessee Eastman Corp., Kingsport, Tenn.*

30

Turbulaire Spray Dryer—This Type N Spray Dryer unit meets the need for an inexpensive small-capacity spray dryer and offers a number of advantages for drying products such as fine chemicals and pharmaceuticals and for investigation of spray drying problems. It is furnished in black iron, stainless steel or other alloys and standard equipment includes electric heater, 4 foot desiccator with cone bottom and hand-operated mechanism for sweeping surface accumulations from the conical section, multiclone collector, fan, bag house and control instruments mounted on a single frame for compactness and ease of installation. *Western Precipitation Corporation, Los Angeles, California.*

31

Chip Breaker and Diamond Finishing Grinder—A new heavy duty grinder built to meet the requirements of production plants where a large volume of carbide tools are being ground is known as Model CB-76. It is designed for accurately grinding chip breaker grooves and for precision finishing of all single point carbide tipped tools. The diamond finishing grinding side is designed for use of either a 6" or 7" diameter cup wheel. The tilting table assembly is moved in and out by screw adjustment rather than slid by hand. The grinder weighs 750 lbs. *Hammond Machinery Builders, Inc., Kalamazoo, Michigan.*

32

Multi-Fluid Airbrush—Mixing two or more materials in the air as they are applied to the surface being coated is the unique feature of the Paasche multi-fluid airbrush, type F1020. One of the principal uses of this gun is the spraying of latex and ascetic acid, mixing the two fluids in the air as they are being applied. The airbrush is also used for applying two or more colors together to produce unusual blended effects. *Paasche Airbrush Co., Chicago 14, Illinois.*

33

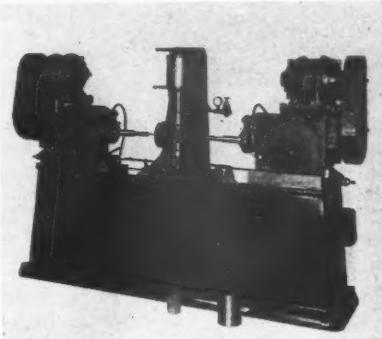
Sander—The light weight, non vibrating, compactness of the Mity-Midget Sander is easy to use—it weighs only 3½ lbs., works at high speed, no vibration and is adaptable for close quarters and fillet work. *National Air Sander, Inc., Rockford, Ill.*

34

Grease and Oil Remover—Recommended for cleaning oil field and construction equipment is a new fast-working remover of heavy grease and oil deposits known as Kelite Pre-Star. A powerful "wetting-out" agent and a controlled PH. *Kelite Products, Inc., Los Angeles 1, Calif.*

35

Piston Drilling Machine—Designed primarily for drilling piston pin holes in job lots of pistons for replacement manufacturing where various sizes of pistons are put through in relatively small lots. In order to accommodate different sizes of pistons a hardened steel adjustable center post is provided with vertical screw adjustment by means of handwheel inside the bed which can be easily reached by removing two screws on the front cover on the bed. An air operated clamp is provided which



clamps the piston rigidly against the adapter plate on the open end. The two Millholland Automatic units have motors mounted on top with multiple Vee Belt drive to the spindle and speed changes are made by changing the sheave pulleys. *W. K. Millholland Machinery Co., Indianapolis, Indiana.*

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Electric Megaphone—A new portable electric megaphone, said to project intelligible speech under favorable conditions up to one half mile distance. Megaphone cabinet is $9\frac{1}{2}'' \times 4\frac{1}{2}'' \times 7\frac{1}{8}''$ in size, weighs $11\frac{1}{4}$ lbs. Speaker is $13\frac{1}{4}$ " long with $7\frac{3}{4}$ " diameter bell opening. Complete unit, including megaphone and cabinet, weighs 15 lbs.-5 ounces. Cabinet is water-proofed,



amplifier chassis is shock mounted to the top section of the cabinet and batteries are said to provide 40 hours of operation. *National Scientific Products Company, Chicago, Ill.*

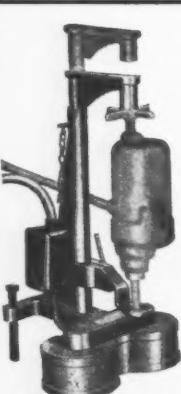
Water Coolers—Announcement of Strata-Flo water coolers, designed to eliminate warm-up and "wet" systems (water in refrigerant lines), and featuring a simplified method of control has been made and cabinet models are available in $3\frac{1}{2}$, 7 and $12\frac{1}{2}$ gallon capacities. Tank models are also available in the same sizes. The Strata-Flo Coolers are entirely new in design and are equipped with interchangeable alternate faucet units in bubbler, lever handle glass filler and push back glass filler styles. *Drayer & Hanson, Inc., Los Angeles, Calif.*

Cut Drilling Costs 80% "MEREKO" Portable Magnetic DRILL PRESS

Clamps firmly with 800 lbs. tension to any ferrous metal—eliminates need for welding, chipping and grinding. Drills in any position. Lightweight, easy to operate, uses DC, AC, or storage battery. Adjustable to size and depth of hole.

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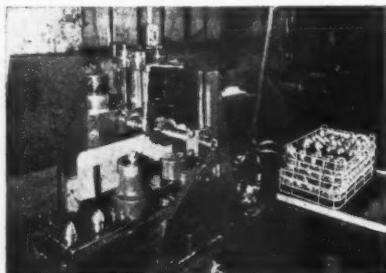
MECHANICAL
RESEARCH CO.
601 Failing Bldg., Portland 4, Ore.



Cover-Lite Goggle—A new goggle has been announced that is reported to provide full protection against impact while affording remarkable wearing comfort. The combined weight of the plastic frame and lenses is only 96/100 of an ounce, designed for safety it rests lightly on the brow, nose and cheeks and will fit varying facial widths and may be worn directly over prescription glasses. Interchangeable lenses may be replaced at small cost. *Chicago Eye Shield Company, Chicago, Ill.*

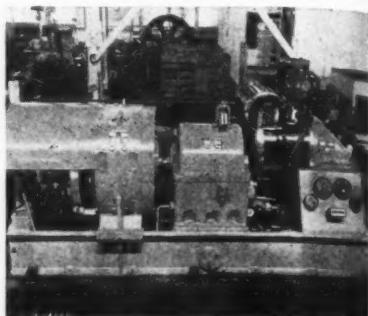
Blind Rivets—The addition of a notch in the pulling mandrel of the self-plugging type Cherry rivet provides several important advantages—careful tests show that this notch serves to inhibit the flow of the metal in the upsetting process employed in forming the pulling head. Cherry rivets are now more uniform. Another advantage is the shorter mandrel, thus effecting a saving in material . . . no bucking bar is needed and rivets are headed-up by a handgun (G-10) or power gun (G-15) operated from one side of the work only. Both rivets and guns manufactured by *Cherry Rivet Co., Los Angeles 13, Calif.*

Air Collet Chuck—The Redmer Air Chucks meet a need for high speed precision-holding and chucking on machine tools and one of the advantages is that it is



possible to make many precision operations on light equipment with partially skilled help. The new Redmer Collet Air chuck takes collets to $1\frac{3}{4}$ ". *Redmer Air Devices Corp., Chicago, Ill.*

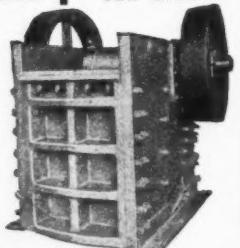
Turbo-Generator—Announcement has been made of a new turbo-generator. Overall dimensions of the 300-kw unit are: width 4 ft. $5\frac{1}{2}$ in.; height 5 ft. $11\frac{3}{4}$ in.; length 11 ft. $3\frac{3}{8}$ in. Total net weight is 16,750 pounds. Other models range in out-



put from 250 to 750 kw, and larger units are being designed. Model 3HG-26 has a designed full-load rating of 300 kw with a steam-inlet pressure of 440 pounds and a total steam temperature of 740 degrees F. Turbine speed is 5250 rpm, and that of the generator is 1200 rpm. The turbine is a multi-stage impulse type designed with five stages and the generator, manufactured by the Crocker-Wheeler division of Hendy is designed for continuous duty. In designing the piping, accessories, and governor assembly simplicity was given paramount consideration. *Joshua Hendy Iron Works, Sunnyvale, California.*

Goggle Cleaning System—The makers of a complete line of lens cleaners for the optical trade, have developed a "System" for cleaning goggles, glass faced dials, microscope and inspection lenses, etc. in industrial plants. Included in the "System" are (1st) hermetically sealed ampoules of Brite-Ize concentrate each of which when mixed with distilled water makes a full gallon of Brite-Ize Lens Cleaners, and (2nd) Brite-Ize "cleaning-station" dispensers. The dispensers can be set on any shelf or attached to any pillar convenient to the point of work. *The Brite-Ize Company, Chicago, Ill.*

Heavy Duty Jaw Crushers



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Peak Production at Low Cost

Manufacturers of Limestone Pulverizers, Gravel or Rock Crushing and Screening Plants, Conveying and Screening Equipment, Chemical Grinders and Mixers.



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2915-17 North Market St., ST. LOUIS (6), MO.

150 to 200 tons per
Hr. Crushing Steam
Shovel Rock to 5"
and 6" minus. Size
24 x 42 wt. 54,200 lbs.

YOURS FOR THE ASKING

1473

Industrial Trucks—Material handling in the factory, warehouse, and freight terminal is the theme of the new Madsen Cargo Truck Bulletin (Booklet M-100-1). *Madsen Iron Works, Huntington Park, California.*

1474

Floor Maintenance—New folders issued: one on AWOG, an oil, acid, chemical and grease resistant floor; one on Rugged-Wear Resurfacer; another on Instant-Use concrete floor patching material, and one giving a condensed resume of floor repair and building maintenance materials. *Flexrock Company, Philadelphia, Penn.*

1475

Weld Testing Machine—A new, improved portable weld testing machine has just been introduced. Moderately priced, this machine is a portable-type unit that performs all these three weld tests—reduced section transverse tension on test; guided bend test; longitudinal all-weld metal tension test. An illustrated booklet (ADI-889) may be obtained upon request of *Air Reduction Sales Company, New York, N.Y.*

You owe it to yourself to keep posted—only the efficient business survives under the strain and pressure of the war effort. Literature listed in these columns may be just the answer to your need for greater production, substitute materials or knowledge of how to care for your equipment. Just drop a note to **Western Industry**, 503 Market St., San Francisco, and copies will be forwarded to you. If you do not use business letterheads, please name your company affiliation.

1476

Instruction Charts—A new portfolio gives valuable instructions for assembly of General Wirebound Boxes. Instruction charts designed to save time in the shipping room are clearly written and full of instructive photographs. *General Box Company, Chicago, Illinois.*

1477

Hydraulic Power—A new booklet describing the growing use for oil well pumping has been published by manufacturers of hydraulic oil well pumping systems, precision gages and other industrial products. This factual booklet is designed to give the layman an understandable picture of the operating principles of hydraulics. *Kobe, Incorporated, Huntington Park, Calif.*

1478

Plywood—De luxe Victory Book, printed in several colors and well illustrated, contains a new copyrighted feature, styled the "Teletype Ticker" on "Up-to-the-Minute Data About the Availability of Plywood and Veneer"; the book comprises three sections: "Plywood In and After Victory"; "The True Function of the Plywood Distributor," and "The Manufacture of Ply-

wood." *Aetna Plywood and Veneer Company, Chicago, Ill.*

1479

On-the-Job Feeding—A booklet giving detailed data on adequate on-the-job-feeding of industrial workers and including an outline for a basic program for a factory geared to the idea of increased production and improved labor-management relations may be obtained from *John Tait Milliken, Chief Business Press Section, Social Security Building, Washington, D.C.*

1480

Music at Work—A report on what management, labor, science, and government think of "functional" music has been published in booklet form under the title of "Muzak at Work." *Muzak Corporation, New York City.*

1481

Instruction Manual—"Lady will you give a lift?" has been re-issued in pocket-size form with the addition of numerous new illustrations. With the help of the manual women can be taught to drive an industrial truck in one day; it explains the importance of her job and tells in non-technical language how to operate a truck and take care of it. *The Elwell-Parker Electric Company, Cleveland, Ohio.*

1482

Constant Level Oilers—Bulletins No. 24-A and No. 25-A describe an automatically controlled visible oiling method for ring or ball bearings, shafts, gear and pump housings, etc. Valuable suggestions on how to end bearing failures, reduce motor burnouts, etc. *Trico Fuse Mfg. Co., Milwaukee, Wisconsin.*

1483

Belt Conveyor Idler—A new 16-page illustrated book No. 1915 announces the "100" Link-Belt anti-friction idler for belt conveyors and gives detailed information on the various sizes available in the several types. *Link-Belt Company, San Francisco, Calif.*

1484

Electronic Controllers—A new bulletin No. B220 describes a new line of Free-Vane Electronic Controllers for automatically controlling temperature, pressure, liquid level, and humidity. The bulletin includes wiring diagrams, principle of operation and general description and features of the new instruments. *The Bristol Company, Waterbury, Conn.*

1485

Compressors and Vacuum Pumps—A new 32 page catalog of compressors and vacuum pumps in sizes from $\frac{1}{2}$ to 10 horsepower is available. The bulletin (Form 1502) covers type "30" line of air-cooled machines with two notable additions, a 3-stage dual-pressure portable and two 3-stage high-pressure units; there are 6 pages of excellent installation views. *Ingersoll-Rand, New York City.*

1486

Ratchet Wrench—A profusely illustrated, concise bulletin (F-10) on the Favorite Reversible Ratchet Wrench graphically describes the principle features of this tool, a distinctive feature of which is the double head which accommodates two sizes of nuts. *Greene, Tweed & Co., New York City, N.Y.*

1487

Welding—New Welding Supply Catalog just released, covering gas and electric welding and cutting, well illustrated and informative, designed to simplify your purchasing. *Victor Equipment Company, San Francisco, Calif.*
(Cont'd on Page 82)



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YOURS FOR THE ASKING (from Pg. 81)

1488

Hydraulic Test Machines—Four types of new test machines are described in a new bulletin. The machines inspect all types of production hydraulic devices and components. The line comprises various types and sizes. *Greer Hydraulics, Inc., New York, N.Y.*

1489

Cutting Tools—A revised pamphlet "Stellite Star J-Metal Cutting Tools" gives sizes and prices of Star J-Metal round tools and complete data on standard square, rectangular and tipped tools; also included are sizes, prices and descriptions of "Stellite" alloy wear strips. *Haynes Stellite Company, Kokomo, Indiana.*

1490

Electrolytic Conductivity Measurements—A new catalog (EN-95) is now available giving electrolytic conductivity measurements, precise measurements and routine and industrial measurements; also suggested combinations of equipment; detailed catalog listing. *Leeds & Northrup Company, Philadelphia, Pa.*

1491

Santa Clara Valley—"Know Your Valley" is a recently published booklet containing reprints of a series of articles appearing in the San Jose Evening News which describes the many advantages this community offers industrialists . . . some of which are transportation, climate, happy homes, canneries water, power, etc. *The Mercury Herald-News, San Jose, California.*

1492

Ties—A new eight-page booklet describing Koppers Ar-Morred ties and listing their particular advantages which include low installation costs plus the benefit of treated wood and steel ties in one unit to provide high-capacity track to match high-capacity equipment. *Koppers Company, Pittsburgh, Pa.*

1493

Tractors—An interesting 20-page booklet is available that illustrates the complete line of "Caterpillar" Diesel Engines, Tractors, and road machinery on earthmoving, agriculture, logging, mining and other power jobs. *Caterpillar Tractor Company, Peoria, Illinois.*

1494

Zone-Conditioning—A simple, non-technical folder is available which will answer most questions about unit heating and ventilation, controlled by zones or rooms, as featured in connection with new, improved Payne models and controls to be available after completion of present war production. *Payne Furnace & Supply Co., Inc., Beverly Hills, California.*

1495

Trade Barriers—The third revised edition of the booklet "Are the United States United?" brings up to date the latest information available on the movement toward elimination of trade barriers and the adoption of uniform minimum standards for sizes and weights of trucks and trailers. *Fruehauf Trailer Company, Los Angeles, California.*

1496

Gravity Feed Oilers—Bulletin No. 26-B illustrates and describes a modernized, streamlined Oiler with a crystal-clear, reinforced plastic reservoir that is 50 per cent lighter in weight and has no gaskets to leak. *Trico Fuse Mfg. Co., Milwaukee, Wis.*

1497

Contract Termination Bulletin—A special bulletin designed to help business men faced with contract termination problems has been released by the Domestic Trade Department of the San Francisco Chamber of Commerce.

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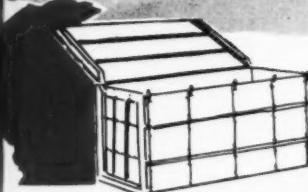
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